Exhibit 2

UNITED STATES DISTRICT COURT

FOR THE SOUTHERN DISTRICT OF CALIFORNIA

PRESIDIO COMPONENTS, INC., Plaintiff,	)
v.	) Cause No. 3:07-CV-0893 IEG NLS
AMERICAN TECHNICAL CERAMICS CORP., Defendant.	)

DEPOSITION OF EDWARD GODSHALK, PhD.

Taken on behalf of Defendant

* * *

BE IT REMEMBERED THAT, pursuant to the Oregon Rules of Civil Procedure, the deposition of Edward Godshalk, PhD. was taken before Marcia May, an Oregon Certified Shorthand Reporter, on Monday, March 17, 2008, commencing at the hour of 9:28 a.m., in the law offices of Stoel Rives, 900 SW Fifth Avenue, Portland, Oregon.

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APPEARANCES:

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* * *

EDWARD GODSHALK, PhD.
having first been sworn by the Reporter to tell the truth,
testified under oath as follows:

EXAMINATION
BY MR. SLONIM:

09:28:27 Q. Good morning, Dr. Godshalk.
09:28:29 A. Good morning.
09:28:29 Q. Would you please state your name for the
09:28:32 record.
09:28:32 A. Edward Martin Godshalk.
09:28:35 Q. And where are you presently employed?
09:28:37 A. Maxim Integrated Products.
09:28:39 Q. And what position do you hold with Maxim
09:28:44 Integrated?
09:28:44 A. I'm a director of technology research and
09:28:50 development.
09:28:50 Q. Is that an equivalent of director of R & D?
09:28:54 A. Yeah.
09:28:54 Q. And who do you report to at Maxim?
09:28:58 A. I report to Ted Yamaguchi.
09:29:01 Q. And what's his position?
09:29:02 A. Executive director.
09:29:03 Q. Is he a part of the management of Maxim
09:29:09 Integrated?

09:29:10 A. Management, yes. And technical.
09:29:13 Q. Management. And do you appear here today on
09:29:19 behalf of Maxim?
09:29:20 A. No.
09:29:21 Q. Do you appear here with the permission of
09:29:24 Maxim?
09:29:24 A. Yes. The president of Maxim gave me his
09:29:28 permission.
09:29:28 Q. And did you discuss your involvement in this
09:29:30 case with Mr. Yamaguchi?
09:29:33 A. No.
09:29:35 Q. And when you said the president, who is that?
09:29:38 A. Vijay Ullal.
09:29:40 Q. You discussed with Mr. -- is that Mr. Ulall?
09:29:44 A. Yes.
09:29:44 Q. And you discussed with him your involvement in
09:29:46 this case?
09:29:46 A. Yes.
09:29:47 Q. And in particular with this deposition?
09:29:48 A. I didn't say deposition exactly.
09:29:57 Q. How many times have you discussed this case
09:29:58 with Mr. Vijay Ulall?
09:30:00 A. Once by e-mail, once verbally.
09:30:03 Q. And does that e-mail still exist?
09:30:07 A. Yes.

09:30:08 Q. We'd like to have that e-mail produced.
09:30:12 A. Okay.
09:30:14 MR. SCHATZ: We'll take it under advisement.
09:30:16 Q. BY MR. SLONIM: And the second time you
09:30:18 discussed this case with Mr. Ullal, was it in person?
09:30:27 A. Yes.
09:30:27 Q. Approximately when?
09:30:28 A. It was in Sunnyvale, for a meeting. It was
09:30:34 late January or early February, I'm sorry, I don't remember
09:30:36 the exact date. If I had my Daytimer, I could look in
09:30:41 there if you want.
09:30:42 Q. I would appreciate that.
09:30:43 A. Okay. At a break, would that be appropriate?
09:30:46 Q. Absolutely.
09:30:47 (INFORMATION-TO-PRODUCE)
09:30:47 Q. And for how long was that? So both of you
09:30:50 were in Sunnyvale?
09:30:52 A. Yes.
09:30:52 Q. And you met in person?
09:30:54 A. I was riding with him in his car.
09:30:57 Q. And how long have you discussed this case with
09:31:00 Mr. Ullal --
09:31:03 A. Oh --
09:31:05 Q. -- while you were riding.
09:31:08 A. It was under a minute.

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Q. A brief discussion?
A. Yeah. I just thanked him for allowing me to participate in it.
Q. Does Maxim have a stake in the outcome of this case?
A. Absolutely none.
Q. Does Maxim sell multi-layer ceramic capacitors?
A. No.
Q. And Maxim doesn't make any multi-layer ceramic capacitors?
A. We do not make them.
Q. Do you consider Presidio Components to be a competitor of Maxim Integrated?
A. No.
Q. Not in any sense of the word?
A. Absolutely none.
Q. Do you sell completely different products?
A. Correct.
Q. To different customers?
A. Correct. There's no overlap.
Q. Do you consider Maxim to be a competitor to American Technical Ceramics?
A. Absolutely not.
Q. To ABS?

A. No.
Q. Kyocera?
A. No.
Q. And your job at Maxim Integrated, is that a full-time job?
A. Yes.
Q. Do you have any second jobs?
A. No.
Q. In addition to working full time for Maxim, do you consult on non Maxim projects?
A. No. This is the first time that I've done something outside of Maxim.
Q. First time for what period of time? Since you started at Maxim?
A. Yes.
Q. And it was approximately '97, is that --
A. Correct.
Q. So since '97 until the present, your only outside consulting was on this case; is that right?
A. To the best of my recollection, yes.
Q. Okay.
A. You know, if I remember something else, I'll certainly tell you.
Q. Absolutely.
A. I'm trying to be truthful.

Q. Absolutely. But as you sit here today now, that's the first non Maxim related consulting project you've undertaken?
A. That is correct.
Q. I see.
MR. SLONIM: I'm sorry, can we need a five-minute break?
(A recess was taken from 9:33 a.m. to 9:39 a.m.)
Q. BY MR. SLONIM: And your work for conferences and professional societies, you don't consider that to be consulting?
A. No; I don't get paid for it.
Q. So consulting is a paid engagement, in your view?
A. That's how I interpret it as.
Q. Okay.
A. I do remember, I taught a course at George Fox University, also. I don't know if --
Q. You were compensated for that?
A. Yes.
Q. What kind of course was that?
A. Microwaves.
Q. And that's a university here in Portland, Oregon?

A. In Newberg.
Q. And how long ago was that?
A. Last year.
Q. Do you teach anywhere presently, any courses?
A. No.
Q. And you were considered to be adjunct faculty or lecturer at that university?
A. No, just a part time.
Q. Part-time lecturer, teacher?
A. (Nodding head.)
Q. And what is your rate of compensation for your work on this case?
A. $250 an hour while I'm sitting in here with you.
Q. And does it change for other tasks that you're performing?
A. Correct. It drops to $200 an hour.
Q. From non deposition related --
A. Correct.
Q. And would it be the same $250 for testimony in court?
A. That is my understanding.
Q. Do you have a written engagement agreement or letter about your engagement in this case?
A. There was a brief letter outlining the amount

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I would be paid.
Q. And who wrote that letter?
A. Brett Schatz.
Q. And approximately when did you receive that letter?
A. I think it was January 8th, there about.
Q. And how much time have you spent since January 8th on working on this case, prior to today?
A. Okay. Bear with me a minute while go through the numbers.
MR. SCHATZ: I'll just caution you not to speculate, but you can give a reasonable estimate. You can give a reasonable estimate to the best of your ability.
THE WITNESS: Okay. To the best of my ability, I would estimate, as of today, right around 60 hours.
Q. BY MR. SLONIM: And do you share any of the earnings from this case with Maxim Integrated?
A. No.
Q. These would be your personal earning?
A. (Nodding head.)
Q. And have you ever been an expert witness in any other case?
A. No.
Q. And you've never testified in a deposition

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prior to today?
A. Correct.
Q. And you've never testified in court prior to today?
A. Correct.
Q. How did your engagement in this case come about?
MR. SCHATZ: And I'll just caution you not to disclose any communications with Counsel.
THE WITNESS: Hm, then I'm not sure how to answer that. I'm sorry. What is the appropriate way to answer that?
Q. BY MR. SLONIM: Do you understand the question?
A. You're asking how did I become engaged?
Q. That's right.
A. I was contacted by these gentlemen.
Q. Who first contacted you?
A. That would be Greg Ahrens.
Q. And approximately when was that?
A. Early January, around this 8th date. It's not exact, but it's plus or minus, you know, maybe a week early.
Q. On or about?
A. On or about.

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Q. And was the first contact by e-mail or do you remember?
A. It was a phone call. I don't remember if it was phone or e-mail first, I'm sorry.
Q. So on or about January 8th you were retained or engaged as the consultant for this case?
A. Yes.
Q. Is that correct?
A. That is correct.
Q. And what was the specific purpose for which you were retained in this case?
MR. SCHATZ: And again, I'll caution you not to disclose any communications with Counsel.
THE WITNESS: Could you please repeat that?
Q. BY MR. SLONIM: Sure.
What were the specific tasks for which you were engaged, which you were engaged to perform in this case?
A. Specifically, I was to review the '356 patent, first to make sure that I agreed with its soundness, and once I did, to review much of the material provided by you.
Q. Anything else?
A. Appear as an expert witness as necessary.
Q. And what was the purpose of the review of the material provided by ATC or ATC's counsel?

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MR. SCHATZ: Objection, asked and answered. He said he came to testify as an expert witness.
Q. BY MR. SLONIM: You may answer.
A. Okay. Could you please repeat it then?
Q. Absolutely.
What was the purpose of your review of the material provided by us, ATC or ATC's counsel?
MR. SCHATZ: Objection, asked and answered.
The witness testified he was called upon to become an expert witness in this matter.
Q. BY MR. SLONIM: You may answer.
A. I may answer that? Okay.
Good question.
MR. SCHATZ: I'll just caution you not to speculate. You already answered the question.
THE WITNESS: Yeah, my assumption was to be an expert witness, I should read any background material I got.
Q. BY MR. SLONIM: And what were the materials that you referred to as materials provided by us, and I presume by us it's ATC or ATC's lawyers?
A. There was several references provided by you, approximately 46 of them.
Q. And these were patents and patent publications; is that right?

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09:48:03 A. Yes.
09:48:03 Q. And you understand them to be part of ATC's preliminary and validity contentions?
09:48:15 A. I'm not sure about that.
09:48:17 Q. In addition to the references themselves, were you given any ATC prepared documents referring to them?
09:48:32 A. Yes.
09:48:32 Q. And do you understand that one of those documents, I guess, to be ATC's preliminary and validity contentions?
09:48:43 MR. SCHATZ: Objection, asked and answered.
09:48:46 Q. BY MR. SLONIM: You may answer.
09:48:47 A. I understood it as to be a document that its purpose was to officially list these references that they could be called upon at a later date. I didn't know how it applies to this, though.
09:49:11 Q. And what was the purpose of your review of those references?
09:49:16 MR. SCHATZ: Objection, asked and answered once. The witness already said to provide expert testimony.
09:49:21 Q. BY MR. SLONIM: You may answer.
09:49:23 A. Yeah, as Brett said, to prepare myself as an expert witness.
09:49:30 Q. And what would be the expert opinion that you

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09:49:36 were preparing to offer based on those 46 approximately references?
09:49:42 A. That the '356 patent is a very solid and novel patent.
09:49:53 Q. So you were preparing a validity --
09:50:00 A. Well, I think -- is this appropriate, because I thought we were here discuss the claims today versus -- are we heading in the right direction here?
09:50:13 Q. I think we're here at the point where you are engaged, and I'm trying to understand what materials you received and what were the tasks you were asked to engage in this case?
09:50:25 MR. SCHATZ: Well, I think it's a fair comment. I'll just note my objection. The witness understands that the issues today are claim construction and claim construction only. With that being said, you can expand upon your, the question as much as you can.
09:50:41 So, is there a pending question?
09:50:46 Q. BY MR. SLONIM: I will repeat the question.
09:50:47 What was the expert opinion that you were preparing based on those 46 references that you --
09:51:02 A. I'm not prepared -- I have not prepared an expert opinion in writing yet. Really, I was preparing myself to review the claim construction today.
09:51:14 Q. Well, when you started working on this case

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09:51:17 and you testified that you've reviewed the '356 patent itself --
09:51:21 A. Mm-hm (affirmative response).
09:51:22 Q. -- and then the materials provided by us, and these include the 46 prior art patents.
09:51:29 A. Mm-hm (affirmative response).
09:51:29 Q. What was the purpose of your review of those 46 patents?
09:51:33 MR. SCHATZ: Objection, asked and answered. The witness testified he's here for claim construction, and that's the subject of this deposition.
09:51:41 Q. BY MR. SLONIM: You may answer. Was it for the claim construction purposes?
09:51:44 A. Yes. That's why I read it, because we had this meeting coming up, so to prepare for the claim construction. That's my understanding of the purpose of today.
09:51:53 Q. When was the first time that you read those 46 references?
09:51:57 A. I started reading them when I received them, which would have been middle of January, late January.
09:52:06 Q. And did you read all of them in one sitting, in one day?
09:52:13 A. No. More often than a day.
09:52:22 Q. I can imagine. So you read it over the course

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09:52:27 of a week or two, is that --
09:52:32 A. I've been reading them consistently since I received them.
09:52:38 Q. Do you mean you've read them more than once?
09:52:40 A. Some.
09:52:40 Q. Which ones did you read more than once?
09:52:42 A. I don't have the list with me.
09:52:44 Q. If I were to show you certain references, would you be able to tell me if you read a particular reference more than once?
09:52:53 A. I think so.
09:52:58 Q. And did you reach a conclusion whether the '356 patent is sound, as you put it?
09:53:07 MR. SCHATZ: Objection, asked and answered.
09:53:09 The witness said he has not done that yes, he has not formulated that opinion, and you're well beyond the scope of this deposition. This deposition relates to claim construction and claim construction only. I suggest you move on rather than waste everybody's time.
09:53:24 MR. SLONIM: I suggest that you stop objecting in that form, in the form of speaking objections and let the witness testify for himself. If you insist on testifying, I think we can swear you in and you'll be in that seat and you can testify, but here it's improper to do that.

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09:53:41 MR. SCHATZ: I disagree. My objection's on
09:53:43 the record.
09:53:45 MR. SLONIM: And I disagree with your style of
09:53:47 your objections.
09:53:48 MR. SCHATZ: Well, I figured you would object
09:53:50 to that.
09:53:50 Q. BY MR. SLONIM: So let me repeat the question.
09:53:57 A. Okay.
09:53:57 Q. As you said, the purpose of your review of the
09:53:59 '356 patent was initially was to assess its soundness.
09:54:06 A. Mm-hm (affirmative response).
09:54:06 Q. And have you reached a conclusion as to the
09:54:08 soundness of that patent?
09:54:10 MR. SCHATZ: Objection, mischaracterization of
09:54:13 earlier testimony.
09:54:13 You can answer.
09:54:15 Q. BY MR. SLONIM: You may answer.
09:54:16 A. Okay. I haven't reached my final conclusion,
09:54:18 but I'm comfortable with the '356 patent at this point.
09:54:22 Q. And by comfortable, you mean it's -- what do
09:54:26 you mean by sound patent?
09:54:27 MR. SCHATZ: I'm going to instruct the witness
09:54:28 not to answer any further questions about the opinions
09:54:30 regarding validity or invalidity. That's not the subject
09:54:34 of this deposition, and you know it and everybody in the

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09:54:37 room knows it, so I suggest you move on.
09:54:39 I'll instruct the witness not to answer that
09:54:41 question.
09:54:43 (INSTRUCTION-BY-COUNSEL)
09:54:43 MR. SLONIM: Is that a question of privilege?
09:54:45 The soundness of the patent --
09:54:47 MR. SCHATZ: My instruction is on the record.
09:54:50 Okay. The witness is not going to answer any questions
09:54:52 about validity or invalidity because that is not the
09:54:56 subject of this deposition. The instruction's on the
09:54:59 deposition. Don't address the witness on those issues any
09:55:02 more.
09:55:02 Q. BY MR. SLONIM: Will you answer the question?
09:55:08 MR. SCHATZ: The instruction stands.
09:55:12 THE WITNESS: On the advice of my counsel, I
09:55:14 would say no.
09:55:15 Q. BY MR. SLONIM: Did you review the '356 patent
09:55:20 for the claim construction purposes?
09:55:23 A. Yes.
09:55:24 Q. How many times?
09:55:26 A. Define a time. Me reading the entire patent?
09:55:43 Q. Let's start with that.
09:55:44 How many times have you read the entire
09:55:46 patent?
09:55:46 A. Let's see. Approximately five or six times.

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09:55:49 Q. And short of reading the entire patent, you've
09:55:55 read certain pieces more than five times?
09:55:59 A. Yes. Yes. Key passages.
09:56:01 Q. And what other materials have you reviewed for
09:56:07 the claim construction purposes?
09:56:09 A. Hm, I would say relevant patents.
09:56:39 Q. Which ones?
09:56:40 A. I don't have the list in front of me. Sorry.
09:56:44 Q. Do you have it somewhere?
09:56:47 A. At home.
09:56:48 Q. I would ask that you provide us with that
09:56:51 list.
09:56:52 MR. SCHATZ: We'll take that under advisement.
09:56:54 THE WITNESS: Okay.
09:56:55 (INFORMATION-TO-PRODUCE)
09:56:56 Q. Does that include other Presidio patents,
09:57:01 other than '356?
09:57:02 A. Yeah, '327.
09:57:04 Q. Any other Presidio patents that you can
09:57:09 identify by key word or some other identifier that stuck in
09:57:15 your mind?
09:57:17 A. There is one earlier one. All I remember is
09:57:20 it has the Devoe name on it.
09:57:21 Q. I think that's a common feature to the --
09:57:24 A. Yes. Yes.

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09:57:25 Q. -- patents.
09:57:31 Do those patents, relevant patents include any
09:57:36 of the ATC patents?
09:57:39 A. Yes.
09:57:43 Q. Do you remember which ones?
09:57:45 A. Monsorno.
09:57:50 Q. How many Monsorno patents are there?
09:57:56 A. I'm sorry?
09:57:56 Q. How many Monsorno patents are there that are
09:58:00 there relevant?
09:58:01 MR. SCHATZ: I'll just caution, don't
09:58:03 speculate.
09:58:03 Q. BY MR. SLONIM: If you remember.
09:58:04 A. I remember one distinctly.
09:58:07 Q. Any of the Mruz patents, M-R-U-Z, as the
09:58:13 inventor?
09:58:15 A. That is not familiar to me.
09:58:16 Q. And those relevant patents would also include
09:58:20 any of the patents from the 46, approximately 46 patents
09:58:25 that ATC provided?
09:58:26 A. Yes.
09:58:27 Q. Would it include all the 46 references or some
09:58:32 subset?
09:58:33 MR. SCHATZ: Objection. Can you restate the
09:58:34 question?

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Q. BY MR. SLONIM: Absolutely.
And would the relevant patents that you've reviewed for claim construction, and you said you have an approximate list of that --
MR. SCHATZ: I'm going to object to the extent you're using the term "relevant".
MR. SLONIM: I'm going to object, if you could hold your objection until I've finished the question, I'd appreciate that.
MR. SCHATZ: I'm sorry. I thought you were finished with your question.
MR. SLONIM: Absolutely not, I was right in the middle, you interrupted me.
MR. SCHATZ: Please finish.
MR. SLONIM: I appreciate that.
Q. BY MR. SLONIM: And do you understand that when I say relevant patents, I'm referring to your prior testimony, relevant patents to claim construction?
A. I understand.
Q. And that's how I'm going to use the relevant patents --
A. Understood.
Q. -- the way you've described that, so we have a common point of reference.
A. Understood.

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Q. And so would the relevant patents that you've reviewed for the claim construction purposes include all 46 patents provided by ATC?
A. I'd say --
MR. SCHATZ: I'll object because I don't understand the definition of the term "relevant" in this context, and I don't think you do either.
MR. SLONIM: I think the witness can answer the question.
MR. SCHATZ: You can answer to the extent you understand the term "relevant".
THE WITNESS: That is a good question. What does relevant mean?
Q. BY MR. SLONIM: Whatever you meant by it when you said relevant patents for claim construction purposes, that you've reviewed for claim construction purposes.
A. Hm. Well, I'd say it's a subset of the 46.
Q. And in terms of judging which patents out of the 46 are relevant for claim construction purposes, or not, did you make that decision yourself?
A. Oh, yes. I was thinking over something, because your last question, you said something interesting. Yeah, relevance to claim construction, hm. As far as the actual claim construction, I found the '356 patent stands pretty much on its own, that the claims that we're

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disputing today, pretty self-explanatory in the '356 patent.
Q. But in addition to the '356 patent you've reviewed other patents for the claim construction purposes, as you've testified before?
A. We've -- I read the patents, but it's an interesting question how necessary were they for the actual claim construction.
Hm. In truth, I could have probably just read the '356 patent if all we're have addressing is claim construction.
Q. Why do you say that?
A. When I read the '356 patent, what I get out of it, out of the summary section, that links close enough to the claim construction, they're self -- they're mutually consistent with each other.
Q. And so that, in your view, reduces the need to consult other patents?
A. I could have just read the '356 patent in isolation, it turns out.
Q. Well, let me repeat the question.
A. Okay.
Q. I don't think you've answered my question.
A. Okay.
Q. So does your view that you only need to review

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the '356 patent for claim construction purposes, reduces the need to review any other references, patent or nonpatent?
A. Um, I have to be careful here.
In hindsight, having read the other patents, I see they didn't -- they were not essential to arrive for the claim construction decisions that I've made.
Q. I see. So let's say in addition to the '356 patent and the other patents --
A. Yes.
Q. -- that you've reviewed for claim construction purposes, what other documents have you reviewed for claim construction, as you were working on your claim construction opinions?
MR. SCHATZ: And again, I would just object that you're talking about a significant amount of materials and you've not offered Dr. Godshalk anything to look at to answer your question; but to the best of your belief and knowledge, you can answer the question.
THE WITNESS: Okay. In addition to what you provided, and actually, in addition to the 46 references, you would include the Herbert article, that's in there, too. I distinguish that as different from patents. I reviewed the filing history with the USPO of the '356 patent and the supporting documents that were given with

it.

Q. BY MR. SLONIM: Did you review any other materials?

A. No. Between the '356 filing materials and what you sent, that's essentially it. I mean, all the essence is in those. I mean, if I looked at some other book by chance, it was nothing significant, so --

Q. I understand.

You didn't keep a list of materials you've reviewed?

A. I operated off of the list of references you provided. That was my checklist.

Q. And other than that list, you didn't add to that list other references that you looked --

A. No, I did not.

Q. Did you check off on that list as you've gone through those references, just for recordkeeping purposes?

A. I did.

Q. Did you write any notes about those references that you reviewed?

A. Well, is that relative, relevant to the claim construction case?

Q. All I'm asking, any notes.

A. Any notes. I'm sure I made scribbles in the margins of some of the patents.

Q. Did you write, make any other, other than the marginal notations on some of references, did you write any other notes or comments to yourself as you were preparing your claim construction opinions?

A. Oh, some Post-its that were stuck on the sides of them that I summarized little parts, and I don't know if they're still there, and when I work on the claim construction, I can operate off of those, but I didn't really need those notes for the claim construction. I found the '356 patent had what I needed in it.

Q. Did you do any calculations for the purposes of your claim construction opinions?

A. No, I didn't find them necessary.

Q. You didn't do any testing of any capacitors?

A. No.

Q. So if we can go back to that initial phase of your engagement, right around January 8th.

A. Mm-hm (affirmative response).

Q. So at that time you were asked to review certain materials and offer your claim construction opinions; is that --

A. I was presented information on the claims that were in dispute, and asked to provide clearer definitions of those claims in dispute.

Q. So let's say right around January 8th --

A. Mm-hm (affirmative response).

Q. -- what were the claim terms that you remember you were asked, that were in dispute, and you were asked to provide definitions?

A. It may have been after January 8th. Initially I just received the patent, please read this patent. It was probably, you know, I would guess in the time frame one to two weeks afterwards, I was told that Claim No. 1, certain sub elements of that were in question, Claim 3, 19, and there was one, I thought there was one other one that then was taken off the table, and I apologize, I don't remember that number.

Q. I completely understand.

A. Okay.

Q. Let me mark a document as an exhibit.

(Deposition Exhibit No. 1 was marked for identification; A discussion was had off the record.)

Q. Looking at Exhibit 1 that I've placed before you --

A. Yes.

Q. -- could you identify what that is?

A. It is the United States patent by Devoe, No. 6,816,356 B2, dated November 9th, 2004. Title is Integrated Broadband Ceramic Capacitor Array.

Q. And is this the patent, the claims of which

you were asked to offer your claim construction opinions about?

A. Yes, it is.

Q. And you've reviewed that patent before?

A. I have.

Q. Could you please turn to Column 12?

A. Okay.

Q. That's I think where Claim 1 begins, at the very bottom.

A. Yes, yes, I see it.

Q. Could you please tell me out of Claim 1 in that first week or two as you've testified after January 8th you were working on claim construction, what claim elements did you understand were in dispute and you were preparing expert opinions on?

A. Substantially --

MR. SCHATZ: I'm going to object to the timing of when particular terms were reviewed. You're generally speaking of within a few weeks of January 8th, and I'm just cautioning the witness not to speculate.

THE WITNESS: Okay. I hope my dates are taken as good faith approximations, and that --

Q. BY MR. SLONIM: Absolutely.

A. Maybe I'm off by four weeks, I don't know, but --

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Q. Let's say the initial focus of your claim construction opinions with uncertain terms.
A. Yeah.
Q. And that's what I want to --
A. Okay.
Q. When it's one week or two weeks, even if you can't place it --
A. Do you mind if I -- can I use my markers if I want?
Q. Absolutely.
A. Well, initially it was Claim 1 and the two that were de-emphasized I can tell you were the second and third ones. It was more a matter of what is not critical.
Q. Okay.
A. But the first one, substantially monolithic dialectric body was one. Let's see.
Conductive first contact disposed externally on the dialectric body and electrically connected to the first plate.
And the conductive second contact disposed externally on the dialectric body and electrically connected to the second plate.
And then it's broken actually there.
And the second contact being located sufficiently close to the first contact to form a first

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fringe-effect capacitance with the first contact.
Q. So those, I think I counted three claim --
A. Yes.
Q. Is that --
A. Well, I think you actually --
Q. Or three phrases?
A. Well, I think it's actually the last one gets broken into two.
Q. Into two.
A. Yeah. So you're going to end up with four.
Q. Okay.
A. Yeah. Broke that one in the middle.
Q. And so then we can skip Claims 2 and 3?
A. I think 3 is actually cited also, because it's a repeat of the end of 1.
Q. What do you mean by that, repeat of the end --
A. Claim 1, it's first-fringe effect capacitance with the first contact. Let's see. At the end of 3, there's a sentence that says "and the second contact being located sufficiently close to the first contact on the second side" -- Claim 1's the first side.
Q. Okay.
A. -- "of the dialect body to form a second fringe-effect capacitance with the first contact," so it sort of repeats the tail end of Claim 1.

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Q. So the form of certain elements in Claim 1 and Claim 3 is similar?
A. Yes.
Q. Okay.
A. Same concept.
Q. Okay.
A. Okay.
Q. And so in addition to the four elements in Claim 1, for that initial claim, batch of claim construction opinions you were preparing, did you consider any opinions for claim elements from Claims 16, 18 or 19? These are additional claims that are asserted in this case.
MR. SCHATZ: And I'll just ask for some time to the witness can review those claims.
Q. BY MR. SLONIM: Absolutely.
A. The only one that I really focused on was Claim 19.
Q. What element from Claim 19?
A. The aspect of the hexahedron shape.
Q. Okay.
(Deposition Exhibit No. 2 was marked for identification.)
Q. Dr. Godshalk, have you seen Exhibit 2 before?
A. I have.
Q. When was the first time you saw it?

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MR. SCHATZ: Just caution the witness not to speculate.
Q. BY MR. SLONIM: Would it be fair to say around January 16?
A. It was after that, within a week after that, but --
Q. So, would it be fair to say that based on Exhibit 2, how many claim elements are proposed for construction in Exhibit 2, if you could refer to that?
A. I think it's --
Q. Take your time to read it.
A. Okay. I see one.
Q. So out of four claim elements that you've initially considered from Claim 1, only one you, at least on January 16 you've decided only one of them needed construction; is that a fair statement?
MR. SCHATZ: Objection, objection, mischaracterization of the testimony.
THE WITNESS: Yeah, I did not make a decision on which ones required it. What I see in this letter is one of them is listed. I can't comment if that implies the other ones were necessary or unnecessary.
Q. BY MR. SLONIM: But they're not listed on this letter?
A. I do not see the other ones listed here.

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Q. Was it your decision not to list them, not to list those additional three in this letter?

A. No.

Q. Do you understand that to be the counsel's decision?

A. Yes.

Q. Do you agree with that decision?

A. I have no opinion on it.

Q. And did the number of claim terms that you've proposed for construction change subsequent to January 16th when only one term was proposed for construction?

MR. SCHATZ: Objection, calls for speculation as far as the timing is concerned.

THE WITNESS: I don't think any decision was made at this point how many were important or not. I don't know. I mean, I see one here, but that's all I can comment on is that there's one here; that doesn't imply the other ones are irrelevant.

Q. BY MR. SLONIM: But if they're not proposed for construction then there will be no construction of them; is that how you understand this process works?

MR. SCHATZ: Objection, calls for a legal conclusion that the witness is not here to testify about.

THE WITNESS: Yeah, it's beyond my experience to comment on that. All I can say is I see in the letter

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that one is listed. As to why the other five are not, it's beyond my understanding.

Q. BY MR. SLONIM: Did you propose them to be included in the claim construction so they'd be construed by the Court?

A. No, I did not.

Q. You didn't propose that to counsel for Presidio, Mr. Schatz or Mr. Ahrens?

A. You mean, did I tell them what claims they should put in? I'm trying to understand the question.

Q. Absolutely. Let me rephrase it.

Did you propose the other three elements or more elements from Claim 1, let's say, to Presidio's lawyers as claim elements that need construction in this case?

A. No, I did not.

Q. And why not?

A. I just never thought of it.

Q. So you don't have an opinion as to which claim elements have to be construed in this case?

MR. SCHATZ: Objection to the extent it mischaracterizes the summary of Dr. Godshalk.

Q. BY MR. SLONIM: You may answer.

A. I just want to make sure I'm clearly understanding what you're getting at.

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Q. Absolutely.

A. I consider everything important that we do. As to which one gets listed in a letter, I would trust that the counsel knows what they're doing, and for all I know, they would follow up with a second letter with more of them. I don't understand that aspect of the process well enough to have a meaningful opinion on it.

Q. But as to your opinion, aside from Counsel's view, your own expert opinion about which claim elements need construction from the asserted claims in this case, do you have that opinion, which claim elements need that construction?

A. I'm trying to really understand what you're asking about. I mean, it was made clear to me that further definition was required on some of the claim elements, so -- and if they need further definition, I felt perfectly capable of giving further definition on those. That's been my involvement really in this.

Q. So unless you were asked to give a definition or consider giving a definition for a claim term, you didn't affirmatively yourself say a particular claim term needs a definition or should have a definition? Is that a fair characterization of how this process worked for you?

A. I think that's fair.

Q. Have you ever, other than in this case, have

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you ever worked for Presidio Components?

A. No.

Q. Or consulted for them?

A. Never.

Q. Have you ever met any of the Devoe family members?

A. No, I have not.

Q. Have you spoken to any of them?

A. One time.

Q. Who did you speak to?

A. It was one of the sons.

Q. I think a couple of them are listed as inventors.

A. Yeah. I think it was Lambert. It was just a brief phone call. There was no serious content. It was like hello, I'm Lambert Devoe. And he didn't describe the invention at all, sort of like -- it was a pretty meaningless phone call, actually. I'm trying to remember any substance of it. I can't really think -- it was something substantive, but it was a brief call, like five minutes.

Q. And you were at your offices in, at Maxim Integrated?

A. Yes.

Q. Were you surprised by that call?

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A. I don't remember being surprised by it.
Q. When was that call, approximately, if you remember?
A. I would say early January, could be -- I really don't know. I mean, it could be plus or minus a week from the new year, something like that.
Q. Okay.
A. Probably not before. I think we were closed then, so it would have been after that.
Q. You were on vacation for the Christmas week?
A. Yeah. We had a company shutdown, so --
Q. Oh, that's nice.
A. Yeah.
Q. So was that conversation with Mr. Lambert Devoe before your telephone call with Mr. Ahrens?
A. I don't remember which one came first, they were very close together, I'm sorry, I don't.
Q. And did Mr. Devoe ask you to work on this case as an expert?
A. He did not ask me to.
Q. What did he ask you in that conversation?
A. I'm trying to remember. The best of my recollection --
MR. SCHATZ: I'll caution the witness not to speculate.

THE WITNESS: Okay.
Q. BY MR. SLONIM: To the best of your recollection.
A. Is if I felt competent reviewing a patent on capacitors, to make sure I was mentally up to it.
Q. And did you answer that question in words or substance in that conversation with Mr. Devoe?
A. Yes.
Q. And what did you tell him?
A. That I've had experience with broadband microwave problems, so I was comfortable with the topic.
Q. Did you tell him that you were competent with the multi-layer ceramic capacitors?
A. I don't think I said that exactly, but I'm familiar with the environment they're used in.
Q. Have you ever designed a multi-layer ceramic capacitor?
A. Not personally.
Q. Have you ever designed a multi-layer ceramic capacitor in other than your personal capacity?
A. One for a manufacturer, you mean, or --
Q. Yes.
A. No, it's not in my -- the companies I've been at, we didn't manufacture ceramic capacitors, so I did not design them.

Q. I see. And you didn't design it either personally yourself from start to finish or as part of a team; is that what you meant by not personally?
A. No, we've -- I've not worked at a company where a product was ceramic capacitors. I've used them a lot. That's my area of expertise.
Q. I see. And let's say even a noncommercial, non multi-layer ceramic capacitor, have you designed a multi-layer ceramic capacitor in your garage or on the side at some point, not for your primary employer?
A. No, I've never designed one.
Q. Do you consider yourself to be experienced enough to design a multi-layer capacitor?
A. Yes.
Q. And what in your background gives you that experience to design a multi-layer capacitor?
MR. SCHATZ: Would it be helpful to see your CV?
THE WITNESS: No. I can talk about it if my counsel's comfortable giving my background.
I have used ceramic capacitors a lot. In fact, we tried to emulate the performance that the Devoes managed to do by putting discrete capacitors together, 110 gigahertz, back in the early 1990's.
Q. BY MR. SLONIM: And you're referring to a

particular figure in the exhibit?
A. Well, we tried cobbling things together, such as in Figure 8A, Figure 8B. That's why I appreciate the Devoe patent so much, because I wished they had this product available then, because it was a real pain to get it to work right.
And I designed integrated circuits on silicon, and the problems are identical to what the Devoes had to conquer. I mean, it's the same area of microwaves and electromagnetics. That's why I'm comfortable with this technology. And I feel that if I need to take a job in a ceramic capacitor company, I feel confident I could design these things because I've done similar problems.
Q. I see. And so what are the similarities, if you could --
A. Parallel plate capacitance, fringing capacitance, we deal with it all the time. If you're not aware of these things your designs don't work at these high frequencies.
Q. But your experience comes from working on the integrated circuits?
A. I've done integrated circuits, I've also spent a fair amount of years what we call metrology, developing probes to measure such devices. That's where we were faced with the problem of trying to get a hundreds of kilohertz

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10:30:59 to 110 gigahertz type of capacitor to build our own. I didn't design a ceramic capacitor. I already answered that. We cobbled together bits that we could buy from other people.
10:31:11 Q. I see.
10:31:12 A. I spent a lot of time building interconnects between an integrated circuit and an output port, and so I have to deal with capacitors in there and fringing capacitances, stray inductances, stray capacitances, and that's largely the essence of this device here. It deals with the same problems, same challenges.
10:31:38 Q. I see. But you've never actually taken let's say a layer of dialectric and put metal plates on it --
A. Oh, I do that.
10:31:50 Q. -- and sintered it.
10:31:51 A. Oh, no, I've not sintered it. We do thin film depositions or we could put metal on silicon, but I have not ever built a fired device where I had a green tape, whatever you like to call it, and sintered, no, I have not done that personally.
10:32:06 Q. And in terms of the silicon, do you understand silicon to be a semiconductor? Is that --
10:32:15 A. Yes, it's semiconductor. Could be a good insulator, depending on the formulation.
10:32:22 Q. I see. And you would not consider silicon to

10:32:24 be a dielectric as it's used in the multi-layer ceramic capacitors?
10:32:29 A. Hm. It's a dielectric, of course. It's different. The dielectric count is so low in silicon compared to the ceramic capacitors, it's a different beast.
10:32:52 Q. And so after that initial call with Mr. Lambert Devoe, you've not had any contact with anybody at Presidio?
10:33:10 A. Correct. It's like, you know, just a brief hello, do you have brains to read something like this?
10:33:17 Yes, I think I do, and that was it. We never talked again.
10:33:19 Q. And before you spoke with Mr. Ahrens about this case the first time around January 8th, have you been in contact with any other -- with anybody -- with any other lawyer at Wood, Herron & Evans, which is the law firm that represents Presidio in this case?
10:33:50 A. Before I talked with Brett?
10:33:53 Q. Before you talked with Brett?
10:33:54 A. No.
10:33:56 Q. How do you understand that Mr. Devoe got your name as a potential expert witness in this case?
10:34:05 A. Hm. We have a -- a friend of mine runs a capacitor modeling company, Larry Dunleavy. He may have gotten it from him, but that's speculation on my part.

10:34:25 Q. And what capacitor modeling company?
10:34:27 A. Monolithics.
10:34:29 So, for the record, that's speculation on my part.
10:34:43 Q. And have you done any work for Monolithics?
10:34:47 A. No.
10:34:47 Q. You've not consulted with them?
10:34:49 A. Correct.
10:34:49 Q. And you've not worked for ATC before?
10:35:06 A. I never worked for ATC. I've used their products, that's about it.
10:35:10 Q. And not for ABS?
10:35:12 A. Correct. Again, just a user of their products.
10:35:16 Q. And not for Kyocera?
10:35:19 A. Correct. I'm familiar with them from the industry, I know who these people are, and they all make good products, but I've never worked for any of them.
10:35:29 Q. I understand.
10:35:30 MR. SCHATZ: Timur, would now be a good time for a break?
10:35:37 MR. SLONIM: Absolutely.
(A recess was taken from 10:35 a.m. to 10:45 a.m.)
10:46:04 Q. BY MR. SLONIM: Just to close the loop, I

10:46:45 think we were going through some company names to see if you've worked or consulted for.
10:46:55 A. Mm-hm (affirmative response).
10:46:56 Q. Have you worked or consulted for JDS Uniphase?
10:47:01 A. No.
10:47:01 Q. And have you worked for or consulted with the Agilent, if I'm pronouncing that right?
10:47:11 A. No, I have not.
10:47:24 Q. Could you tell me if all of your claim construction opinions are presented in your summary of claim construction that was provided to us around February 26?
10:47:39 A. Yes. I think there's six of them in there; is that correct?
10:47:41 Q. And did you draft the first draft of that summary?
10:48:06 A. It was done in collaboration with Brett Schatz.
10:48:12 Q. So, who authored the first draft? Who typed up the first draft?
10:48:17 A. He typed up the first draft.
10:48:19 Q. And was it sent to you for review?
10:48:24 A. Yes.
10:48:24 Q. By e-mail?
10:48:25 A. Yes.

Q. Do you still have that e-mail?
A. I believe I do.
Q. Did you offer your comments and changes to that first draft?
A. Definitely.
Q. Did you do it in writing?
A. I had a phone call with him and I remember inserting one sentence in particular.
Q. Which sentence is that, if you remember?
A. You have the document?
Q. I certainly do.
MR. SLONIM: Let's mark this as Exhibit 3.
(Deposition Exhibit No. 3 was marked for identification.)
THE WITNESS: Bear with me a second here.
Q. BY MR. SLONIM: No problem.
MR. SCHATZ: I'll just caution you not to speculate.
THE WITNESS: I know exactly the one, if I can find the thing. It was earlier than that. Sorry about this.
Q. BY MR. SLONIM: No problem, take your time.
A. Ah, Paragraph 15, from the bottom, one, two, three, four, five, sixth line up from the bottom.
Q. Would you read that?

A. "ATC's proposed definition is overly restrictive, since it limits the use of the contact to connection to an external conductor and touching the first plate."
Q. Do you remember specifically adding any other sentences to the first draft?
A. No. We had a lot of -- it was by phone, a lot of it, you know, massaging this together verbally, and then I just decided to drop that last one in there near the end.
Q. And when, approximately, did you receive that first draft, if you remember?
A. When was it published? Do you remember?
Q. It was Tuesday, I understand that it was Tuesday, February 26th.
A. Yeah.
Q. Around --
A. It would have been then or within a day or two after. Oh, it was published, oh, done.
Q. I think signed and done.
A. Yeah, well, obviously I got it before that.
Well, we had numerous phone calls over the month before that, putting our ideas together. When did I actually see the completed product --
Q. Yes.
A. You know, one to two weeks before it was

shipped to you people.
Q. So if it's February 26th that it was shipped to us, do you generally say it's about February 12, 13, when you --
A. I don't know. I don't know.
MR. SCHATZ: Let me interject.
THE WITNESS: Okay, please.
MR. SCHATZ: I'll just object and caution the witness not to speculate.
THE WITNESS: Yeah. I am speculating at that point. I don't know.
Q. BY MR. SLONIM: And reviewing the e mail with which the first draft came would answer that question?
A. Yes.
Q. Okay.
A. Yes.
Q. And does the summary, which is Exhibit 3, list all of the materials that you've reviewed in preparing this summary?
A. Oh, itemized? It does not list them itemized, but it adequately describes them in one of the paragraphs.
Q. Could you read me the paragraph that adequately describes the materials?
A. All right. Let's see.
MR. SCHATZ: And before you answer, I'd like

to have the question read back.
A. Sure, okay. Should I identify it first, Brett then?
MR. SCHATZ: No. I'm asking the court reporter to read back the question.
(The Reporter read back the last question.)
MR. SCHATZ: And could I have the previous question, as well? I apologize.
(The Reporter read back the last question.)
MR. SCHATZ: I'm just going to interject an objection that Dr. Godshalk has testified that he's reviewed a vast amount of materials, and with that objection, you can answer to the best you understand.
THE WITNESS: Okay. Yeah, No. 4, we say, "In addition, my opinions are based upon certain materials that I have reviewed in preparation of my opinions, including the materials discussed herein. In addition, my opinions are based upon my review of the '356 patent and related materials, the preliminary and responsive claim construction papers of Presidio and ATC, and the materials referenced therein."
That's very accurate.
Q. And when you say the three, in the second sentence in that paragraph, for the '356 patent and related materials --

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A. Mm-hm (affirmative response).
Q. What are the related materials?
A. There's prior art patents that were filed with it in exchange with the US Patent Office.
Q. Anything else?
A. That's what I think of when I say the '356 patent.
Q. And is it your understanding that the prior art patents that were filed with the '356 patent are listed on the front page of the '356 patent?
A. I believe they are. This looks correct to me, because there's '327 ones, and I remember these. Yes. That looks complete to me.
Q. And so by related materials, you're not referring to anything else?
A. No, I'm not.
Q. And when you say in the first sentence of that Paragraph 4, "My opinions are based upon certain materials that I have reviewed in preparation."
A. Mm-hm (affirmative response).
Q. What are those certain materials?
A. Certain materials would be the '356 filing package, and then what we go on to talk about, the construction -- let's see, what did we say, related materials, the preliminary and responsive claim

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construction papers of Presidio and ATC and materials referenced therein.
And what I mean by that is the, all the patents that you had referenced in your filing that you gave, the 46 are in there, that list of 46 references, I think that's the number.
Q. So the certain materials that you reviewed and the materials listed in the second sentence are equivalent; is that what you're saying, or -- because I'm not --
A. Which one? Certain materials? Yeah, the certain -- sorry. I'm going too fast here.
Certain materials would be the union of the '356 filing package and then what you provided.
Q. And the certain materials do not include anything else?
A. Correct.
Q. Do the certain materials include any dictionaries?
A. I used dictionary.com for some of the definitions in here. And that's referenced later, so I didn't -- so I wasn't try to trick you. I figured if it's referenced later I don't have to have them in that paragraph, so --
Q. I think we can figure it out.
A. Okay. I'm not trying to pull --

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Q. Did Counsel, Mr. Schatz or Mr. Ahrens, provide you with the dictionary definitions for use in this case?
A. He provided some and some I looked up myself. I don't remember who did which one.
Q. As far as I could tell, I think there are two dictionary definitions presented in this.
A. I think there's actually three, substantially monolithic and then disposed, and there's one more, actually.
Q. Well, let's say --
A. Arranged maybe.
Q. I think you're right.
A. Okay.
Q. And so do you remember who provided, whether it was you that came up with any of those dictionary definitions?
A. Well, we worked on --
MR. SCHATZ: Objection, asked and answered. He said he doesn't recall.
Q. BY MR. SLONIM: You may answer.
A. I think it was around the phone jointly at the same time, so I can't remember who entered in their computer, so I'd be speculating if I said which word he did and which one I did, so I can't answer that accurately. Sorry.

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Q. Did you look up the definition of monolithic in the Webster's Third New International Dictionary?
A. Well, I reference it because it comes up under dictionary.com, it will give you Webster's definition and the American Collegiate Dictionary. It's like a giant search engine. It will go and get their definitions and present it to you. So I did not specifically go to Webster's, no.
Q. I see. And did you specifically check the Webster's, the published Webster's dictionary?
A. No, I did not.
Q. And have you used the dictionary.com before in your ordinary course of business?
A. I've used it occasionally with my kids. Oh, that's not business.
Q. So not in the ordinary course of business?
A. I can't say yes or no.
Q. Other than your kids' studies, I guess?
A. Yeah. Have I used it at work? I don't know. I mean, I don't remember if I've used it for work, or not.
Q. Do you have any technical dictionaries at work?
A. I have my books, my reference books. I don't have a dictionary, per se, that's a technical dictionary.
Q. And when you refer to your books, is that a

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personal library in your office of certain books?
A. Yes, I -- in 25 years you can't help but accumulate some books.
Q. Does Maxim Integrated have a technical library where --
A. No.
Q. So each engineer has his or her own set of reference books or articles or -- is that?
A. That's a fair statement.
Q. And do you have a technical library or reference books at home?
A. I do have some.
Q. And do you have any technical dictionaries at home?
A. I don't.
Q. Do you have a home office where you perform --
A. I have my old lab. There's old books in there.
Q. And by old lab, you mean as a -- what do you mean by old lab?
A. I had my own business. It's on my CV there.
Q. Are you referring to the Red Point Microwave --
A. Yes. Yes. Good at accumulating books.
Q. So other than books, what else is in your old

lab?
A. Oh, I have my wire bonder, spectrum analyzer.
Q. Any other equipment?
A. There's an oscilloscope, computer that doesn't work anymore, some power supplies and a printer.
Q. Do you use that old lab for work purposes?
A. No. It's -- it hasn't been used in a long time.
Q. I see that the pages of your opinion are not numbered. Is that what you -- was that your decision not to number these pages?
A. I made no decision on that.
Q. Do you know who made that decision?
A. I don't.
Q. You didn't propose that the pages be numbered?
A. I did not.
Q. And if you look at the second-to-last page of that Exhibit 3, your summary --
A. Okay.
Q. -- do you see Paragraph 24 there?
A. I do.
Q. And if you go back one page --
A. Okay.
Q. -- the preceding paragraph, if I can tell right, is numbered 22?

A. I see that.
Q. What happened to Paragraph 23?
A. Hm, I don't know.
Q. Was there a Paragraph 23 before?
A. I don't remember.
Q. Do you remember how many paragraphs were in the initial draft, in the first draft that you received?
A. No, I'm sorry to say I don't.
Q. And you don't remember if you wrote certain sentences that were Paragraph 23 before some iteration?
A. Correct. Appears to be a numbering mistake.
Q. Would you consider yourself to be responsible for that numbering mistake?
A. Jointly.
Q. How much time, if you remember, did you spend revising the first draft and finalizing the summary of the claim construction opinions, which is Exhibit 3?
A. I don't know the exact number of hours. I'm not supposed to speculate, am I?
Q. No, no.
A. Okay.
Q. Would that number of hours be recorded somewhere? Do you keep track of the hours you spend working on this case?
A. Mm-hm (affirmative response). Yeah, I -- when

I invoice them, I have to make an estimate of how much time I spent.
Q. Do you record time daily that you spend on --
A. Yeah, I try to be diligent about it.
Q. Do you keep those daily records?
A. I do.
Q. What form are they in?
A. I use Excel spreadsheet.
Q. And do you do one entry at the end of the day?
A. Sometimes many times during the day, to be accurate. I try to itemize everything.
Q. And you record in the Excel spreadsheet a description of what you've done?
A. I do.
Q. And then an approximate number of hours or minutes?
A. I do.
Q. And what increment do you use?
A. I've been using minutes lately. I switched over from fractions of an hour to minutes, but I don't remember the date when I switched over.
Q. So you record, let's say, a conversation with Mr. Ahrens, seven minutes; is that --
A. That is correct.
Q. So you basically are down to the minute?

A. I try.
Q. And did you send that spreadsheet to Counsel?
A. I do, when I invoice them.
Q. So you attach that spreadsheet to the invoice?
A. I do.
Q. And it basically summarizes what you've done and gives the total?
A. Line items, then total.
Q. Moving into some substantive claim construction issues, do you agree that the term hexahedron means a three-dimensional object which has six sides?
A. If you say exactly hexahedron, I do.
Q. And in your expert opinion, does hexahedron, the term hexahedron define a shape?
MR. SCHATZ: Objection, vague.
Q. BY MR. SLONIM: You may answer.
A. Does it define a shape. Does hexahedron define a shape.
MR. SCHATZ: I'm going to object, because that's not part of his opinions. He's opined on what the definition of hexahedron shape should be, but you're asking for something that's not relevant to the claim construction.
Q. BY MR. SLONIM: You may answer the question
A. If you're looking at a geometry book,

hexahedron would define a shape.
Q. And what shape is that?
A. Six-sided.
Q. So hexahedron defines the number of sides; is that a fair statement?
A. That's a fair statement.
Q. And it defines any six, a three-dimensional object with six sides?
MR. SCHATZ: I'll object to the extent it's not related to claim construction in this case, specifically given the fact that Claim 19 requires a definition of hexahedron shape, not hexahedron, so if you understand the question, you can answer.
THE WITNESS: It's a question of how closely you look at something.
From a distance, something could be a hexahedron, but as you get closer, it's not, and you could see small pertubations in the surfaces. It depends on the context of the word, how it's used.
Q. BY MR. SLONIM: So what's the ordinary meaning of the word "hexahedron"? Do you agree that the ordinary meaning, the dictionary definition of it is a three-dimensional object that has six sides, being testified about in the claim?
A. If you use in isolation the word "hexahedron",

yes. If it's hexahedron shape or like, it may be approximately six-sided.
Q. And what does it mean to be approximately a hexahedron? Would a seven-sided object be a hexahedron?
MR. SCHATZ: Objection, calls for a legal conclusion that the witness is not here to testify about.
And I'll instruct you not to answer that.
(INSTRUCTION-BY-COUNSEL)
Q. BY MR. SLONIM: Are you an expert in hexahedrons?
A. No, I'm not an expert in hexahedrons.
Q. Are you an expert in hexahedron shapes?
A. No, I'm not.
Q. Are you an expert in geometry?
A. No, I'm not.
Q. But you've offered a construction of the phrase "hexahedron shape", haven't you?
A. Mm-hm (affirmative response).
Q. I'm not trying to explore your construction. I want to understand what it applies to and what it doesn't apply to, and what I want to understand is, is a three-dimensional object that has seven sides --
A. I use --
MR. SCHATZ: Let me finish. Don't jump so fast.

I'm instructing the witness not to answer. You just asked the same question back to the witness that I instructed him not to answer. You are hoping to get a response when I instructed not to answer, so I appreciate you not doing that, so, I'm instructing --
MR. SLONIM: Brett, what's your basis on instructing the witness not to answer claims --
MR. SCHATZ: Sure.
MR. SLONIM: I didn't finish.
What's your basis on instructing the witness not to answer the question about claim construction opinion that the witness has offered in his summary? And I understood that the purpose of this deposition was to explore those opinions, and that's why I'm asking the question, what does that construction cover or not cover, and why, and I would like the answer to that question and this line of questioning. And could you explain to me why you are instructing the witness, not on the privilege grounds to, not to answer questions about claim construction?
MR. SCHATZ: Because your question is not relative to claim construction. It's an issue of whether or not there is a coverage by a particular thing of a particular claim term, and that is not defining particular terms of the claim; it goes into issues of infringement,

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11:13:57 and that is not an issue in this case, or at this
11:14:03 deposition.
11:14:09 MR. SLONIM: I strongly disagree, and I would
11:14:15 ask that you remove this instruction because if we go down
11:14:22 this path, I think we will move the Court to compel
11:14:31 Dr. Godshalk to give those opinions at a subsequent
11:14:35 deposition or to be precluded from offering any opinions
11:14:38 that he doesn't answer about at this deposition, so we are
11:14:46 precluded from exploring what his constructions cover, to
11:14:49 not cover, and why.
11:14:50 MR. SCHATZ: And then can you rephrase or can
11:14:52 you restate your question and then I'll take a moment to
11:14:54 consider the instruction?
11:14:59 MR. SLONIM: Absolutely.
11:15:08 Q. And would a three-dimensional object that has
11:15:13 seven sides be a hexahedron, as you've construed that term?
11:15:22 MR. SCHATZ: Okay, we'll take a break. You
11:15:24 can stay here, though.
11:15:26 (Pause in proceedings.)
11:17:53 MR. SCHATZ: I'll object to the question
11:17:58 whether hexahedron shape covers a particular thing, to the
11:18:02 extent it calls for speculation.
11:18:04 Q. BY MR. SLONIM: You may answer. There is no
11:18:07 instruction not to answer.
11:18:08 A. Am I allowed only to answer the question as it

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11:18:16 was asked?
11:18:18 Q. You can answer it in any way you feel --
11:18:22 A. When I say hexahedron, I was -- I would call
11:18:25 it referring it to a macroscopic scale, if it's okay to use
11:18:29 that term. That's why I said in the definition, the
11:18:34 dialectric body has six major surfaces, major meaning
11:18:38 macroscopic. A fellow picks up this capacitor with a pair
11:18:41 of tweezers and say how many sides does that have, and he'd
11:18:44 say six, it would be a hexahedron; but if you get a
11:18:49 magnifying glass out or a microscope you see, oh, there's
11:18:51 some conductive material, there's a little step in it,
11:18:53 there's a little gap, you could have 14 sides, you could
11:18:56 have a dozen sides on it. Is it a hexahedron at that
11:18:59 point? Microscopically, no; macroscopically, yes.
11:19:02 But there are no perfect hexahedrons in the
11:19:06 universe, even on small enough, there's always a rough
11:19:09 surface of atoms, so -- but we use the term anyway.
11:19:14 Q. And so in terms of your construction on the
11:19:21 macroscopic level, when does a three-dimensional object
11:19:26 stop having a hexahedron shape?
11:19:30 MR. SCHATZ: Objection, calling for
11:19:32 speculation.
11:19:33 Q. BY MR. SLONIM: In your expert opinion?
11:19:35 A. I don't have a hard number. And the object
11:19:45 occupies a couple percent of your field of view. It would

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11:19:47 look like a hexahedron, but as you zoom in, eventually it
11:19:52 doesn't, so what's that number? I guess it depends on your
11:19:56 eyesight and prescription.
11:19:57 Q. So, it's objective?
11:19:58 A. It is, yeah.
11:19:59 Q. So, a hexahedron shape is a subjective
11:20:02 determination?
11:20:02 MR. SCHATZ: Objection, mischaracterizes the
11:20:04 question. You were questioning him about hexahedron, and
11:20:07 you just injected in there, hexahedron shape.
11:20:09 Q. BY MR. SLONIM: You may answer.
11:20:12 A. Can you repeat the question again?
11:20:18 Q. Absolutely. Absolutely.
11:20:30 So in your expert opinion, hexahedron shape is
11:20:33 a subjective determination?
11:20:36 A. I would call it not sub --
11:20:37 MR. SCHATZ: I will object to the extent it
11:20:41 mischaracterizes the summary in Exhibit 3.
11:20:45 Q. BY MR. SLONIM: You may answer.
11:20:45 A. I wouldn't use the term subjective. I would
11:20:49 use it as an approximation.
11:20:53 Q. And what is the upper boundary of that
11:21:02 approximation in your expert opinion?
11:21:03 A. In this case it would be thicknesses of metal
11:21:08 or conductive materials. If we ignore those thicknesses

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11:21:15 and little gaps that are formed, if we agree to ignore
11:21:18 those, then you could call it a hexahedron shape, so,
11:21:23 that's the boundary.
11:21:26 Q. And by that you mean ignoring the
11:21:34 imperfections?
11:21:35 A. Subtle height changes, little gaps that are
11:21:38 formed. If we ignore those, then you could say, you know,
11:21:40 that's a hexahedron.
11:21:41 Q. But if you intentionally created a side in
11:21:49 that three-dimensional object, and the number of sides then
11:21:57 exceeded the six intentionally, would you still call it a
11:22:01 hexahedron shape?
11:22:02 A. I would call it --
11:22:03 MR. SCHATZ: Objection to the extent you're
11:22:05 using the term intentionally.
11:22:08 THE WITNESS: It's a by-product of building a
11:22:10 device, they don't have perfectly smooth sides. And if we
11:22:17 ignore those realities, there are subtle height changes due
11:22:21 to conductive layers and intentional gaps that are formed,
11:22:25 then I would call it a hexahedron shape. And that is the
11:22:28 spirit that that was written in is ignoring those. I would
11:22:32 call them microscopic deviations in the surface.
11:22:35 Q. And how microscopic are they? Do you have an
11:22:38 opinion on that?
11:22:38 A. I would say under ten-thousandths of an inch.

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Q. Why do you say that?
A. Well, there's little features in there that can be under one thousandths of an inch, two thousandths of an inch. They're acquired when you build such a device. ATC does it, Presidio does it, but I think a lot of people call them hexahedron shape.
Q. Would that boundary depend on the size of the capacitor, or the physical dimensions of the capacitor, of the multi-layer capacitor?
A. Wow. It's a whole -- that comes down to the creating a definition, doesn't it?
Q. Well, I think that's the purpose of the claim construction exercise.
A. Okay. I would call it -- okay. The definition I would go with, the person holding it in a pair of tweezers two feet away would call it a hexahedron. His eyesight couldn't pick up the small pertubations. Then I'd be comfortable calling it a hexahedron. But then it's so subjective, as you come in closer, people's eyesight with mag, you know, the microscope it's under, eventually nothing is perfectly smooth. Take a brick, you get down small enough, you'll find pores in it, and roughness, but we call it a hexahedron.
Q. So a brick is a hexahedron?
A. It's a hexahedron shape; it's not a perfect

hexahedron.
Q. Could you give me other examples of hexahedron shape, other than a brick?
A. I would say -- that is so subjective, though, you could say a book is approximately a hexahedron shape.
Q. Anything else?
A. I'm sure I could think of others. Is this, I mean, is this appropriate to be going down this path for the claim construction?
Q. In your expert opinion, yes, absolutely.
A. I guess I'm not sure where this is heading, this part here.
Q. I want to understand what hexahedron shape, and I understand that we are trying to accept the imperfections and certain things with certain eyesight or getting closer, and I want to understand what other known shape, hexahedron shapes you know in your expert opinion considered to be hexahedron shape?
A. Well, the building behind you --
MR. SCHATZ: Objection. Objection. You're considering it as it's used in Claim 19 of the '356 patent?
Q. BY MR. SLONIM: Yes.
A. Okay. The building behind you, if you ignore where it's connected to the ground, if you were to lift it in the air, appears to have six sides, six major surfaces,

I would call those six major surfaces. Again, we're approximating its shape.
Q. Okay. Would a --
MR. SCHATZ: Shall we mark that building as an exhibit? I would love to get its address.
(A discussion was held off the record.)
THE WITNESS: Whereas, I'd say, that building is not, with the tower sticking out the top there.
So how do we define that? I don't know. Because the tower's 20 percent of its width? I don't know. I mean, it's a whole field of study. I'm sure people have spent a lot of time doing this. I haven't.
Q. BY MR. SLONIM: And by the tower, you're referring to that --
A. Cylindrical.
Q. -- cylindrical on top of the --
A. Yeah.
Q. Not that sight tower, not the building with the sight tower. I'm not sure you can see it from where you --
A. No. Sorry. The white one with the grayish glass.
Q. Where the cylindrical tower has a red ring on top of that cylindrical? You can stand up if you --
A. Oh, that one. No, sorry. I was talking about

the white one there.
MR. SCHATZ: I'm going to object that we're talking about buildings in the context of the '356 patent.
Q. BY MR. SLONIM: Okay. Would you --
MR. SCHATZ: And there are no buildings that are relevant to Dr. Godshalk's opinion, there are no buildings that are mentioned in Paragraph 24 of Exhibit 3.
Q. BY MR. SLONIM: Would you consider a pentagonal pyramid to have a hexahedron shape?
MR. SCHATZ: Objection.
Q. Within the meaning of Claim 19, in your construction?
MR. SCHATZ: Objection. What is that? What are you referring to? Vague.
Q. BY MR. SLONIM: Are you familiar with a pentagonal pyramid?
A. I think I am.
Q. Can you draw one for me?
A. My art quality's probably a question here. Okay. It's hard to put the other side on. Okay, I'll put dotted lines here. (Witness complies.) Five-sided.
Q. That's what you consider to be a pentagonal pyramid?
A. That's my best guess.
Q. Could you write pentagonal pyramid here and

11:28:21 we'll mark this as an exhibit so we're sure what we were talking about?
11:28:27 A. (Witness complies.) I'm going to put a question mark, because I'm not sure.
11:28:43 Q. I understand that.
11:28:44 Can we mark that as Exhibit 4, please?
11:28:49 (Deposition Exhibit No. 4 was marked for identification.)
11:29:04 Q. And so this pentagonal pyramid that you've drawn, or the approximation, in Exhibit 4, is that a hexahedron? Does it have a hexahedron shape, as you've defined it?
11:29:22 A. The drawing I have made I would not call a hexahedron.
11:29:27 Q. Why not?
11:29:28 A. It has five major surfaces.
11:29:33 Q. Does it have any minor surfaces, other than the imperfections where the --
11:29:38 A. Not intentionally.
11:29:39 Q. So it has five surfaces, so it's a five-sided object?
11:29:43 A. That's what I tried to draw.
11:29:45 Q. So a five-sided object would not have a hexahedron shape, is that a fair statement, in your expert opinion?

11:29:55 A. If we're talking major surfaces, I would agree with you.
11:29:59 MR. SLONIM: Can we mark this as an Exhibit 5, please?
11:30:48 (Deposition Exhibit No. 5 was marked for identification.)
11:30:48 Q. BY MR. SLONIM: And I would represent to you that Exhibit 5 is a printout from the web site answers.com --
11:31:04 A. Mm-hm (affirmative response).
11:31:04 Q. -- about hexahedron.
11:31:08 A. Got it.
11:31:08 Q. And if you turn to Page 2 of that printout there is a bottom row of three-dimensional objects, and the second one in that row next to the cube I think is labeled a pentagonal pyramid.
11:31:35 A. It looks like I got that one wrong.
11:31:38 Q. I think you just missed one side.
11:31:40 So looking at the pentagonal pyramid as drawn in this Exhibit 5, would you say that in your claim construction the hexahedron shape that this pentagonal pyramid of this exhibit has a hexahedron shape as you've defined it?
11:32:05 MR. SCHATZ: I'm going to object and ask that the witness be given time to review all of Exhibit 5 before

11:32:10 he answers.
11:32:11 MR. SLONIM: Absolutely.
11:32:11 MR. SCHATZ: I'm going to take a short restroom break so you can do that.
(A recess was taken from 11:32 a.m. to 11:34 a.m.)
11:34:26 Q. BY MR. SLONIM: Do you remember the question?
11:34:37 A. No, I don't.
11:34:38 Q. Let me repeat that.
11:34:40 So looking at the pentagonal pyramid on Page 2 of Exhibit 5 --
11:34:53 A. I see it.
11:34:54 Q. -- do you consider that, in your expert opinion, to have a hexahedron shape as you have defined it?
11:35:00 A. Well, I think I have to.
11:35:08 Q. Is that yes?
11:35:11 A. Yes.
11:35:11 Q. Do you consider the -- if you could label in your copy of Exhibit 5 all the objects, the three-dimensional objects in this row, with A or B, so we can refer.
11:35:32 A. Sure, A, B, C, D, okay.
11:35:35 Q. Would you consider the pyramid that you've labeled as C in Exhibit 5 to have a hexahedron shape as you have defined it?

11:35:51 A. Well, not as I define it, but as they defined it.
11:35:54 Q. So it's not a hexahedron shape under the -- so a capacitor in that shape would not have a hexahedron shape?
11:36:04 A. I was using the regular hexahedron definition as what I would say conventional use.
11:36:17 Q. And what is the regular --
11:36:20 A. Well, this would be a regular hexahedron, the six-sided box. But do not these have six sides, these other ones, so, by strict definition, they are hexahedron.
11:36:36 MR. SCHATZ: I think the question relates to the '356 patent.
11:36:39 THE WITNESS: In the '356, I was referring to what I call a regular hexahedron.
11:36:45 Q. BY MR. SLONIM: Where is the word "regular" in your summary of your opinion?
11:36:49 A. It is not in there.
11:36:50 Q. Is the word "regular" in the language of Claim 19?
11:36:56 A. I don't think it is, but we should check.
11:37:01 Q. Absolutely. I think it's Exhibit 1, the '356 patent.
11:37:05 A. Okay. Mm-hm (affirmative response).
11:37:05 Q. And I think Claim 19 is in Column 14.

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11:37:10 A. Okay. It does not say.
11:37:17 Q. So when you were construing the term a hexahedron shape, would it be fair to say that you were really construing a term a regular hexahedron shape?
11:37:30 A. That is what I was assuming.
11:37:32 Q. So you were not construing the literal language of the claim that reads, "The capacitor of Claim 1 wherein the dialectric body has a hexahedron shape"; is that fair to say?
11:37:46 A. In my mind, it was what we'd call a regular hexahedron.
11:37:51 Q. What other geometrically proper names would a regular hexahedron have, in your expert opinion?
11:38:01 A. A cube. Well, it's an elongated cube.
11:38:06 Q. Would a rectangular parallelepiped?
11:38:20 MR. SCHATZ: Objection. Do you know what that is?
11:38:21 THE WITNESS: Yeah. Well, I -- my understanding, the sides don't necessarily have to be parallel. It's taking a box essentially, and you could move it around like that (indicating). They don't have to have normal corners with 90 degrees with respect to each other.
11:38:36 Q. That's the parallelepiped?
11:38:38 A. Mm-hm (affirmative response).

11:38:38 Q. The rectangular parallelepiped. Do you understand what a rectangular parallelepiped --
11:38:43 A. Well, I guess I'm not sure what the difference is between a rectangular and just a parallelepiped. Is a rectangular where you force the corners to 90 degrees, all of them?
11:38:51 Q. In your expert -- have you ever encountered in your --
11:38:55 A. I know the name, but I don't feel competent to give you an answer on that.
11:39:04 Q. You don't have an expert opinion on it?
11:39:06 A. I don't.
11:39:06 Q. If you were to look at the Exhibit 5, on Page 2 above, there is an exam of a parallelepiped.
11:39:26 A. That's what I was thinking.
11:39:29 Q. Could you label the particular shape you were thinking about?
11:39:37 A. This is what I was thinking as a parallelepiped, you can take a box and you're allowed to move the upper and lower surface, for example, with respect to each other, but the side lengths are all maintained constant length, so they'll track each other.
11:39:49 Q. And do you consider a cube to be a rectangular parallelepiped?
11:39:54 A. Hm.

11:39:55 Q. In your expert opinion?
11:39:56 A. It seems like it would be a subset of a parallelepiped.
11:40:01 Q. So is the answer yes?
11:40:12 A. Yes, I would think it is.
11:40:14 Q. And so in your expert opinion, only Figure A, as you've labeled it on Exhibit 5, has a hexahedron shape as you've defined it in, for Claim 19; is that fair to say?
11:40:28 MR. SCHATZ: Are you just referring to Options A, B, C and D? I'll object, the question's vague.
11:40:40 THE WITNESS: I was not implying that it has to be a cube. This is, was shown as a cube, and it's not cubic, the capacitor, the sides aren't all -- the faces are not all equal size.
11:40:56 Q. BY MR. SLONIM: And so if the pentagonal pyramid as labeled B as in Exhibit 5, you consider that not to have hexahedron shape as you've defined it for Claim 19; is that correct?
11:41:12 A. That's not what I meant when I wrote it.
11:41:15 Q. What is your opinion here today?
11:41:20 A. Okay. My opinion on hexahedrons or --
11:41:27 Q. Your opinion whether a pentagonal pyramid, particularly one labeled B in Exhibit 5, whether that would fall within the scope of your definition of a hexahedron shape as you have defined it previously?

11:41:49 MR. SCHATZ: That is in the context of the '356 patent?
11:41:55 Q. BY MR. SLONIM: Correct.
11:41:55 A. It's not what I was thinking of when I wrote my definition.
11:41:58 Q. I understand that, but you haven't answered my question.
11:42:01 A. Okay. I'm not trying to be evasive. I'm just having trouble recalling it.
11:42:05 Q. Let me repeat that.
11:42:06 A. Okay.
11:42:06 Q. Is your opinion, sitting today --
11:42:08 A. Today, revised after seeing your material? Okay.
11:42:11 Q. Exactly.
11:42:14 A. Okay.
11:42:14 Q. Seeing that a pentagonal pyramid is, consider it, has six sides and therefore is considered to be a hexahedron --
11:42:26 A. Yes, I agree with you.
11:42:30 Q. Does that mean that a pentagonal pyramid has a hexahedron shape as you have defined it in the context of the '356 patent?
11:42:42 A. By my definition, no, because I was referring to a regular hexahedron, so --

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Q. And what's your definition of the regular hexahedron?
A. Six sides that are nominally 90 degrees in all corners.
Q. Let's look on Page 3 of Exhibit 5.
A. Okay.
Q. If you see on the second row of figures --
A. Mm-hm (affirmative response).
Q. There are here in this exhibit they're called concave figures. If you could label them also with -- could you give them different letters?
A. Oh, certainly.
Q. I think we've used A, B, C, D.
A. How about 1, 2, 3?
Q. That's fine. So, would Figure 1, do you agree that concave Figure 1 as you've labeled 1 in this Exhibit 5, has six sides?
A. I would, yes.
Q. And in terms of your expert opinion, would a capacitor in this form of Figure 1 of Exhibit 5, would that have a hexahedron shape as you have defined it in your expert opinion?
A. If my definition is defined as a regular hexahedron, then it does not, if we accept that as my definition. Have we accepted that? When you say my

definition, did I mean regular hexahedron? I'm just trying --
Q. Well, I'm having trouble understanding what your real definition is because as we've I think agreed before, Paragraph 24 where you talk about the hexahedron shape doesn't mention anything about regular hexahedron, the angles or anything else about it.
A. You're right, it does not say it, you're right, so --
Q. That's why I'm having trouble understanding what your opinion is and what it covers and does not cover.
A. So may I give my definition for the record then, what I meant when I wrote this?
Q. Yes.
A. Okay.
What I meant was a six-sided object, but what I would call a regular hexahedron, implying nominally 90 degrees in the corner. I realize from seeing your wonderful document here, it is a subset of the hexahedron family.
Q. And why did you decide to limit your definition of a hexahedron shape to a particular subset of a hexahedron family?
A. It was based on one of the references, such as you provided, it's -- the term hexahedron is often used to

describe capacitors of the shape similar to the one in our claim. It's a conventionally used term to say hexahedron to describe these six-sided objects with nominally 90 degrees in the corner.
Q. But you would agree that the term hexahedron covers any object with six sides?
A. Yeah, encompasses much more, I agree.
Q. And would you agree, also, that the term hexahedron does not define a shape?
A. Yeah, in its widest definition, I would agree with you.
Q. Would you also agree that the patent, the '356 patent that we're construing here is also silent about a regular hexahedron shape or regular parallelepiped?
MR. SCHATZ: Objection, vague. And if you need to time to review the patent, feel free to do so.
THE WITNESS: I'll just look at it a minute here.
My opinion is that although it may not be exactly stated, regular hexahedron, the drawings all imply it to be what I would call a regular hexahedron.
Q. BY MR. SLONIM: And by saying regular hexahedron, would you consider Figure D on Page 2 of Exhibit 5 to be a regular hexahedron?
A. No, I would not.

Q. Why not?
A. Because it doesn't have a nominally 90 degree corners.
Q. And so when you are using the term "regular hexahedron", are you really referring to a regular cube?
MR. SCHATZ: Objection, mischaracterizes his testimony.
Q. BY MR. SLONIM: In your expert opinion?
A. I see.
Q. Go ahead.
A. When I mean regular hexahedron, it could be a cube, or it could be an elongated cube.
Q. It could be either -- so a regular hexahedron in your opinion for the purpose of the '356 patent claim construction, could be a regular cube or a rectangular parallelepiped?
A. Yes, if that implies nominally 90-degree corners, yes.
Q. Do you understand that rectangular --
A. That implies 90 degrees in the corners, correct?
Q. What's your expert opinion on that?
A. Well, I believe that is correct.
Q. I believe so, too.
A. Okay.

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11:50:04 Q. And what are the opposed sides of a
11:50:29 hexahedron? How would you define the opposed sides of a
11:50:33 hexahedron?
11:50:33 A. All the major faces, or faces.
11:50:37 Q. Which ones of the major faces would you call
11:50:43 opposed?
11:50:44 A. Oh, well, opposed side, there would be six
11:50:49 pairs of opposed sides. You'd have them along a major axis
11:50:54 and a minor axis.
11:50:55 Q. Could you draw in Exhibit 5 in Figure A --
11:51:01 A. Yes.
11:51:02 Q. -- which is an example of a cube --
11:51:04 A. Okay.
11:51:04 Q. Could you label the opposed sides?
11:51:13 A. Okay.
11:51:14 Q. Maybe label the sides and then tell me which
11:51:16 ones would be opposed?
11:51:18 A. All right.
11:51:18 Q. And I understand there might be some -- so
11:51:21 let's say the front is 1.
11:51:23 A. Okay.
11:51:23 Q. The back is 2.
11:51:24 A. Okay. I'm drawing an arrow to the back, the
11:51:27 top will be 3, bottom's 4, left could be 5, right could be
11:51:33 6. Okay.

11:51:35 Q. Front is 1?
11:51:38 A. Yeah. That's what you said, and I agree with
11:51:42 that.
Q. Okay.
11:51:42 A. So, opposed sides I would call 1 and 2 are
11:51:45 opposed, 3 and 4 are opposed, and 5 and 6 are opposed.
11:51:49 Q. And 3 and 6 are not opposed?
11:51:51 A. Correct. They are adjacent sides.
11:51:54 Q. And in terms of the axis that you were
11:51:58 referring to, could you explain your definition of opposed
11:52:03 in terms of that axis? I wasn't sure how that matters.
11:52:07 A. Oh, axis.
11:52:08 Q. Axis. I think you meant -- I think you said
11:52:10 axis, right?
11:52:11 A. No, I did not. If I said it, I didn't mean
11:52:15 to. Did I say axis? Can you repeat what I said?
11:52:18 Q. I think I heard axis. You said major surfaces
11:52:26 and major axis or minor axis, and I understood it to be
11:52:31 A-X-I-S.
11:52:31 A. Okay, sorry. What I mean by axis, axii,
11:52:36 multiple axes?
11:52:38 Q. Right.
11:52:39 A. Okay, got it.
11:52:39 What I'm referring to in a regular or
11:52:41 rectangular parallelepiped, in any vertex there's three

11:52:46 axes that come together, correct.
11:52:49 Q. Mm-hm (affirmative response),
11:52:49 A. And the degrees, the angle between them is
11:52:56 nominally 90 degrees between all three axes.
11:52:59 Q. Okay.
11:53:03 A. I could draw that if you'd like.
11:53:05 Q. Yes. I'm just trying to make sure we're clear
11:53:10 on it.
11:53:10 A. That these are all -- I'm sorry. Is that
11:53:12 clear what I'm trying to draw, that you could essentially
11:53:16 insert a cube into the corner. These are all symbolizing
11:53:19 90 degrees and this vertex, for example, would be there
11:53:21 (indicating).
11:53:22 Q. And how does this drawing about multiple axes
11:53:29 help you explain the opposed, what the opposed sides in
11:53:34 that regular --
11:53:35 A. I wouldn't -- I hadn't thought about how the
11:53:40 axes applied. What I would say, opposed sides, are you
11:53:45 asking how I define that?
11:53:47 Q. Yes.
11:53:47 A. That they have -- they're not adjacent to each
11:53:51 other. They do not have a common axis.
11:53:55 Q. They do not have a common edge?
11:53:57 A. Correct.
11:53:58 Q. So any sides that do not have a common edge,

11:54:04 under your definition, would be opposed?
11:54:08 A. Yeah, for a cube, or rectangular
11:54:12 parallelepiped, if you're trying to --
11:54:14 Q. Let's say looking at Figure D in Exhibit 5,
11:54:19 which is a one type of a pentagonal pyramid --
11:54:24 A. Mm-hm (affirmative response).
11:54:25 Q. Would you say it has opposed sides, within
11:54:32 your definition?
11:54:33 A. Let's see. Boy, that's a hard one. I don't
11:54:49 know if you count the point where they all come together as
11:54:51 a common connection, or not. I don't know.
11:54:54 You'd like to say your first instinct might be
11:54:56 that this one and this far one are opposed, but they do
11:55:00 come together at that vertex, so, I don't know.
11:55:06 Q. What would you need to do to find out or come
11:55:11 to an expert conclusion on that?
11:55:12 A. Um, yeah, I'd want to see what the strict
11:55:15 mathematical definition is of opposed sides. Does it --
11:55:21 can the sides be opposed and share a common vertex? I
11:55:25 don't know.
11:55:25 Q. And so if we were to go back to the Claim 19
11:55:43 in Exhibit 1, the '356 patent --
11:55:49 A. Okay. Column 12, is that --
11:55:51 Q. Column 14.
11:55:52 A. Oh, 14. Sorry. I see it.

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11:55:54 Q. So, you would agree that when a person of skill in the art reads the following language, "The capacitor of Claim 1 wherein the dialectric body has a hexahedron shape" --
11:56:16 A. Mm-hm (affirmative response).
11:56:16 Q. The literal language of that claim would mean that a hexahedron is a three-dimensional object with six sides and it doesn't define a particular shape; is that a fair statement from reading the literal language in Claim 19?
11:56:39 A. Okay. My opinion is that your -- the majority of people who read this would assume what we call either a cube or a rectangular parallelepiped. That is my opinion.
11:56:50 MR. SCHATZ: I'm going to interject an objection that you're taking a phrase out of context of the entire Claim 19, and that misconstrues and makes the question vague.
11:57:04 THE WITNESS: Yeah, just from all the drawings and the summary, I would say that they would be preconditioned to assume a regular hexahedron, or parallelepiped -- rectangular parallelepiped.
11:57:14 Q. BY MR. SLONIM: But the literal language of the claim is much broader than a regular parallel -- than a rectangular parallelepiped, including a cube?
11:57:33 A. The literal definition of hexahedron shape,

11:57:38 you know, I can't deny it, it does take into -- you know, if you literally just take those two words out of there, certainly you're right, there's all these other shapes that fall under that definition. I can't argue with you on that.
11:57:52 MR. SCHATZ: In the context -- objection.
11:57:54 THE WITNESS: In the context of the patent, but all the supporting drawings, your normal man of ordinary skill, or woman, who read this, I think that they would come to the same conclusion that this rectangular parallelepiped.
11:58:09 Q. BY MR. SLONIM: So in your opinion, the figures and the description of the patent limits the literal words "a hexahedron shape" to a rectangular parallelepiped?
11:58:22 A. I wouldn't call it --
11:58:25 MR. SCHATZ: Objection, mischaracterization of the testimony.
11:58:27 Q. BY MR. SLONIM: Is that your opinion?
11:58:28 A. No, I don't say that it limits it to it, because if you read in the patent, it says, in one of the paragraphs earlier, we could hunt for it, but the patent isn't limited to hexahedron shapes.
11:58:40 Q. I think, and I'm not trying to mischaracterize --

11:58:47 A. No, go ahead.
11:58:48 Q. I'm trying to understand --
11:58:49 A. Sure.
11:58:50 Q. -- what your opinion is of this point.
11:58:52 I think I understood you to say that a hexahedron shape as you have understood and defined it, only covers a cube or a rectangular parallelepiped and you've I think told me before that Figures B, C and D in Exhibit 5 would be excluded from that definition; is that right?
11:59:23 A. No.
11:59:23 Q. And the B, C and D in Exhibit 5 are rectangular --
11:59:26 A. I wouldn't exclude them. I just hadn't thought of them. There's a difference there, I think.
11:59:32 Q. So as you sit here today, what's your expert opinion? Are the pentagonal pyramids --
11:59:40 A. Could you use one?
11:59:41 Q. -- B, C and D, are they covered by the phrase and the claim term "a hexahedron shape" as you have construed it?
11:59:51 A. Hm. Okay. As I have construed it --
11:59:56 Q. Yes.
11:59:57 A. -- I would say they're not covered by it.
12:00:04 Q. And so if other types of, or other examples of

12:00:12 hexahedron, I hope I'm making the right plural out of this, are not covered by your definition of a hexahedron shape, I'm trying to understand why you're limiting the literal language of the hexahedron shape, which to a person skilled in the art would mean any hexahedron shape, including a pentagonal pyramid, why you were excluding pentagonal pyramid and concave figures and other hexahedron shapes?
12:00:49 A. It's not an intentional exclusion. It's, if you read the summary or the patent and look at all the figures, they're all what I would call these regular or rectangular parallelepiped structures, and I think that's the spirit of the patent that it was, when it said hexahedron, it was to imply those types of shapes.
12:01:11 Q. So your opinion based on all the figures in the patent, the rectangular parallel -- or capacitors in the shape of a rectangular parallelepiped, that means that a hexahedron shape has to be, the only definition of that is a rectangular or a regular parallelepiped, or rectangular parallelepiped or a cube; is that what it means?
12:01:38 A. I wouldn't say it's the only definition of it. It's -- I would call it the common use of the word. I never went to, in my thought process, I was thinking of shapes similar to the drawings, but I never thought, oh, I'm going to exclude these B, C and D's. Honestly, it

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12:02:02 never entered my mind, so I don't -- I can't fairly comment
12:02:06 on if they're excluded, or not.
12:02:07 Q. And in terms of your expert opinion about what
12:02:30 a hexahedron shape is, would a three-dimensional object
12:02:36 having seven sides have a hexahedron shape?
12:02:40 MR. SCHATZ: Objection, calls for speculation.
12:02:43 Q. BY MR. SLONIM: You may answer.
12:02:44 A. Well, I would say if it had seven major
12:02:49 surfaces, I would not call it a hexahedron. It all comes
12:02:53 down to that definition, what is a face, you know, what
12:02:57 imperfections do you allow in it.
12:02:59 Q. Aside from the imperfections, if we were to
12:03:04 cut, and I'm referring to Figure A in Exhibit 5, which is a
12:03:12 cube, if we were to cut the --
12:03:15 A. The corner off?
12:03:15 Q. -- a corner off intentionally, would that
12:03:21 object --
12:03:22 A. When does it stop being a hexahedron? Is
12:03:25 that --
12:03:25 Q. That's right.
12:03:26 A. That comes down to that question, what is a
12:03:28 major and what is a minor face?
12:03:33 Q. Let's say it's not due to an imperfection. I
12:03:37 understand that we've had a discussion about imperfections
12:03:39 and what it means.

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12:03:40 If we intentionally cut it off, it's not an
12:03:44 imperfection, we did a cut off, and now I think the object
12:03:49 is, has seven sides, would you agree that if a vertex is
12:03:57 cut off that three-dimensional object that was a cube
12:04:02 before would have seven sides, major or minor?
12:04:06 A. Seven sides, I can't deny that.
12:04:09 Q. So would that object with seven sides be a --
12:04:13 have a hexahedron shape as you've defined it?
12:04:16 MR. SCHATZ: Objection, that calls for an
12:04:19 analysis that goes beyond claim construction.
12:04:21 Q. BY MR. SLONIM: You may answer.
12:04:24 A. I think it's so subjective, I -- I don't know
12:04:29 the answer to that one.
12:04:31 Q. So sitting here today, you have no expert
12:04:33 opinion on that?
12:04:34 A. I don't have an opinion on it at this moment.
12:04:40 Q. And you haven't considered that before?
12:04:44 A. Well, it gets down to how are you using the
12:04:49 term hexahedron shape. If you're trying to give an
12:04:53 approximate shape and this little cut that you're talking
12:04:55 about is not noticeable, you know, from a distance you may
12:04:59 still describe it as a hexahedron, but under a microscope,
12:05:02 you'd say no, it's not, it has seven sides. So, to me, it
12:05:06 doesn't seem like that there's a definitive answer on it.
12:05:12 To a mathematician where everything's perfect,

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12:05:15 he would say no, it's not a hexahedron, but to your average
12:05:18 guy out in the field using a surface mount capacitor, but
12:05:21 as that small cut, he'd probably still say, well, give me
12:05:22 that hexahedron shaped capacitor, so I can't give a
12:05:27 definitive answer on it.
12:05:28 Q. And how many sides would a -- and let's say a
12:05:43 former cube with all the vertices --
12:05:46 A. Knocked off?
12:05:46 Q. -- knocked off intentionally, not by some
12:05:49 imperfection in the manufacturing process.
A. Sure.
12:05:51 Q. How many sides would that object have?
12:05:55 A. Well, let's see, what are there -- are there
12:05:57 eight corners? One, two, three, four, five, yeah, there's
12:06:00 eight, plus the original six faces, correct, so it would be
12:06:03 14; is that right?
12:06:04 Q. Yes.
12:06:05 A. Now --
12:06:06 Q. Would that be --
12:06:08 A. It depends on --
12:06:08 MR. SCHATZ: Objection, calls for opinion that
12:06:11 goes beyond the claim construction.
12:06:14 Q. BY MR. SLONIM: You may answer.
12:06:15 A. Yeah, again, it's -- it depends on the
12:06:20 application of the word and how big the cuts are. If

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12:06:23 they're just tiny little cuts that are not visible in
12:06:27 normal use, I would say most people could still call it a
12:06:30 hexahedron shape.
12:06:31 Q. Could you direct me in the patent to a section
12:06:34 which describes how one would determine what a -- what to
12:06:43 consider an imperfection in a minor side and how to
12:06:46 distinguish a minor side from a major side?
12:06:48 A. Well, I believe there's references to the
12:06:54 drawings where it talks about conductive materials. Is it
12:06:59 10 and 11? Or no, I should look here. Oh, 12 and 13. I
12:07:07 would believe, I believe there are passages in the patent
12:07:12 just talking about those being not opposed surfaces. I'd
12:07:15 have to dig through it. I honestly don't have it memorized
12:07:18 where that would be, though. We could hunt for those.
12:07:20 Q. Do you believe that the patent describes how
12:07:23 to determine a major surface from a minor surface, how to
12:07:29 distinguish between them?
12:07:30 A. I don't think there's an exact phrase that
12:07:32 says this is a major surface and this is a minor surface.
12:07:35 Q. So it would be a fair characterization to say
12:07:43 that the patent itself does not teach how to determine a
12:07:45 major surface from a minor surface?
12:07:47 MR. SCHATZ: Objection. Are you calling for
12:07:48 that question with respect to one skilled in the art or
12:07:52 just the literal language of the patent itself?

Objection, vague.
Q. BY MR. SLONIM: You may answer.
A. Well, in a grade-schooler picked it up, they wouldn't learn what's major and minor, I agree with you. But a person who uses surface monitor capacitors and is familiar with them, I think they would understand what is implied by opposed surfaces and what are major surfaces, and that, for example, the gap is considered minor and does not influence the shape, you know, we call it hexahedron, even though, for example, it has a gap, so, it depends on the reader.
Q. And is there a technical reference that you can refer us to that describes how to determine a major surface from a minor surface in this field?
A. Hm. None jump to mind at the moment, but it doesn't mean there aren't any. I can ponder that over. I can't think of a reference that comes to mind that has a clear discussion on that, but it doesn't mean it doesn't exist, so --
Q. Could you please, on Exhibit 1, on the front drawing on it, could you label the major surfaces, the surfaces you consider to be major?
A. Okay. I would consider --
MR. SCHATZ: I'll object to the extent this is -- you're looking at a cross-section, not a

three-dimensional image.
Q. BY MR. SLONIM: Understanding, with that understanding --
A. Okay.
Q. -- list on this --
A. Sure.
Q. -- cross-sectional presentation of that, could you label that on the front page?
A. Yeah, alluding to Figure 14, if we accept it, it's a cross-section of something like in Figure 14, I can do that.
Q. Absolutely. Can you do that with a pen?
A. Not magic marker then?
Q. Oh, that would be fine, just so we're clear.
A. I would consider this a major surface, and I'm drawing the opposed ones in the same color.
Q. Okay.
A. And then I would call this the other pair of major surfaces there. Is that helpful?
Q. Yes, it is.
So you've colored it in blue the --
A. Vertical.
Q. The vertical parts of objects, contacts 12 and 13, that are labeled 12 and 13 in that figure.
A. Mm-hm (affirmative response).

Q. And you've also colored in --
A. Orange.
Q. -- orange?
A. Would you like to color yours?
Q. Thank you.
And then you've colored in orange the horizontal parts of contacts 12 and 13 --
A. Mm-hm (affirmative response).
Q. -- that, and I guess this space between them, is that what you meant, because I think there is a gap between those.
A. Yeah. I'm ignoring the change in height where this conductor material comes over. That's why I'm talking about the minor part that I -- when I say major surface, I ignore those. I just sort of blend them in together.
Q. But otherwise, the gap between Pad 72 and Pad 74, you would consider that to be a minor surface?
A. Correct, I would ignore it when --
Q. When you were --
A. Calling it my regular hexahedron or rectangular parallelepiped.
Q. And when you are doing this, when you're determining what's a major versus a minor surface, does that have any -- the relative area of the surface, is the ratio of the relative areas or of the areas of the

surfaces, is that what you take into account?
A. Qualitatively, yes.
Q. Do you agree in your expert opinion that capacitance is measured in farads?
A. Hm. That is the most common way of measuring it, defining it.
Q. Do you know of any other ways of measuring capacitance?
A. You could do it as a, I guess --- yeah, the coulombs per volt, you could give it as a ratio. In fact, I think that's originally how Coulomb did it, however many years ago, or whatever.
Q. And so between coulombs per volt and a farad, are these the only two standard typical ways that you would measure?
A. Yeah, that is the typical way that those --
Q. Skilled in the art?
A. -- skilled in the art would use.
If you used some other arcane method, they probably wouldn't get the other information across very well. I'm not saying there isn't another way to do it, but it's not commonly known. Okay.
Q. Okay.
MR. SCHATZ: Timur, have you moved beyond the Claim 19 issues?

12:14:21 MR. SLONIM: I think so.
12:14:24 MR. SCHATZ: Would now be a good time to take
12:14:26 a break for lunch?
12:14:26 MR. SLONIM: Absolutely. For lunch?
12:14:31 MR. SCHATZ: Yes. It's 12:15, unless you plan
12:14:38 on moving very quickly and finishing in the next half an
12:14:41 hour, we're going to take -- we're going to need to take a
12:14:43 break for lunch.
12:14:44 MR. SLONIM: Can we do that at 1?
12:14:46 MR. SCHATZ: Dr. Godshalk, do you need a break
12:14:51 for lunch?
12:14:51 Well, I need a break for lunch, so I'm not
12:14:53 going to wait until 1:00.
12:15:01 THE WITNESS: I guess I'll be going with my
12:15:03 counsel to lunch then.
12:15:08 MR. SLONIM: You unilaterally define when
12:15:10 we'll have lunch?
12:15:10 MR. SCHATZ: No. It's 12:15. I'm asking is
12:15:14 that an okay time, and I'm saying it's not appropriate to
12:15:17 wait until 1:00 for lunch.
THE WITNESS: Because you're on east coast
12:15:19 time.
12:15:19 MR. SLONIM: Fine, we can have lunch. Let's
12:15:20 be here at 1.
12:15:22 THE WITNESS: Works great. Thank you.

(A recess was taken from 12:15 p.m. to 1:10
12:15:26 p.m.)

EXAMINATION
13:10:39 BY MR. SLONIM:
13:10:39 Q. What types of capacitances exist in a
13:10:50 multi-layer ceramic capacitor?
13:10:54 A. Broadly speaking, they're the parallel plate
13:11:01 capacitances, and people would call that the principal
13:11:03 capacitance. And then there are what some authors call gap
13:11:10 capacitance, or other ones call fringe capacitances.
13:11:13 Q. Any other types of capacitances, in general?
13:11:16 A. Those two areas pretty much cover it.
13:11:19 Q. Could you draw me an example of a structure
13:11:26 that would have a parallel plate capacitors?
13:11:30 A. Two-dimensional or three?
13:11:39 Q. Two-dimensional is fine.
13:11:42 A. A cross-section. So these are the two plates
13:11:48 here (indicating), a capacitor there for you.
13:11:54 Q. Could you label that as a Figure A?
13:12:00 A. Okay. (Witness complies.)
13:12:01 Q. Excellent.
13:12:14 And could you draw me an example of a
13:12:17 structure that would have a fringe-effect capacitance?
13:12:30 A. These are -- I'm drawing the electric fields

13:12:37 in a fence. We'll call it a gap capacitor. Some people
13:12:54 call it a gap capacitor.
13:12:54 Q. So would it be fair to say that would be two
13:12:58 pieces of metal or two conductive pieces in an edge-to-edge
13:13:05 relationship let's say on the same plane, like you've drawn
13:13:10 in Figure B --
13:13:10 A. Mm-hm (affirmative response).
13:13:11 Q. -- would always have a fringe-effect, would
13:13:15 always form a fringe-effect capacitors?
13:13:18 MR. SCHATZ: I'll object, just to make a note
13:13:19 for the record that as Counsel is asking the question he's
13:13:22 positioning his hands opposed to each other in a planar
13:13:28 relationship, and then I'll also object to the extent it
13:13:31 calls for speculation.
13:13:36 Q. BY MR. SLONIM: You can answer the question.
13:13:38 A. Could you please repeat that question.
13:13:39 Q. So would it be fair to say that two pieces of
13:13:45 metal or two conductive pieces in an edge-to-edge
13:13:49 relationship like you've drawn in Figure B would always
13:13:53 have a fringe-effect capacitance, in general?
13:13:59 A. In general, yes.
13:13:59 MR. SCHATZ: Objection. Calls for
13:14:01 speculation.
13:14:03 Q. BY MR. SLONIM: You may answer.
13:14:04 A. Well, I was going to was going to say, in a

13:14:09 general sense, yes, but not necessarily as defined in the
13:14:11 '356 patent.
13:14:13 Q. Can we take a look at Exhibit 1, which is the
13:14:28 '356 patent. Can we go to Figure 2A? Could you identify
13:14:36 the fringe-effect capacitances created or existing in the
13:14:46 multi-layer ceramic capacitor depicted in Figure 2A?
13:14:50 MR. SCHATZ: I'll object to the extent are you
13:14:52 discussing fringe-effect capacitance in the context of the
13:14:55 '356 patent or in the context removed from that patent?
13:15:01 You can answer to the extent you can.
13:15:03 THE WITNESS: Yeah. In terms of the '356
13:15:06 patent, there is no fringe capacitance here.
13:15:10 Q. BY MR. SLONIM: In Figure 2A there is no
13:15:13 fringe-effect capacitance?
13:15:14 A. Not in terms of how we defined it in the '356
13:15:17 patent.
13:15:17 Q. But let's say what's your general definition
13:15:22 of the fringe-effect capacitance as you've illustrated in
13:15:26 Figure B?
13:15:26 A. If you're talking about fringe-effect
13:15:29 capacitance that does not effect the high frequency
13:15:34 performance, then you could draw it off the edges of the
13:15:38 plates.
13:15:38 Q. So the fringe-effect capacitance does not
13:15:44 effect high frequency performance, accepting that

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13:15:49 definition, could you draw me the fringe, the label, all
13:15:55 such fringe-effect capacitances created in Figure 2A?
13:15:58 A. Yeah, as long as we understand that it's not a
13:16:17 definition of -- not according to definition in the '356
13:16:23 patent.
13:16:23 Q. Correct. I think my question fairly --
13:16:27 A. They may be unusable capacitances; they may
13:16:30 have no significance at all.
13:16:32 Q. Nonetheless, let's --
13:16:43 A. (Witness complies.)
13:16:47 Q. Starting with the first fringe-effect
13:17:26 capacitance which you've identified, could you tell me what
13:17:29 physical elements form that first fringe-effect capacitance
13:17:33 that you identified in Figure 2A?
13:17:34 A. I've drawn one from Plate 12 up to the
13:17:39 external conductor material called 13 -- oh, no, sorry,
13:17:44 it's plate 10 prime, I'm sorry, from 10 prime to 13.
13:17:50 Q. 10 prime to 13?
13:17:52 A. Mm-hm (affirmative response). This little guy
13:18:04 here, between here and here (indicating), since they're
13:18:07 opposite polarity.
13:18:09 Q. And what's the next one?
13:18:14 A. The next one I've drawn, there's one here,
13:18:18 from Plate 11, and I show it going up to Plate 10 prime.
13:18:27 Q. And that would be a fringe-effect capacitance?

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13:18:38 That was my question.
13:18:39 A. It interesting, it's a -- a more accurate term
13:18:48 for that one actually would be a stray capacitance.
13:18:51 Q. What's the difference?
13:18:52 A. It's a fine term. Fringe, they don't have to
13:19:02 be necessarily planar. Here's another example I'm drawing
13:19:08 here. Generally, the proximate ends of two conductors,
13:19:14 when you have a large plate and an end plate, which we've
13:19:20 drawn here, some people would call that a stray
13:19:23 capacitance. It's a subtlety.
13:19:24 Q. And so you would understand the stray
13:19:27 capacitance to be another example, an instance of the
13:19:32 general fringe-effect capacities?
13:19:33 A. I haven't thought about that. I haven't
13:19:38 thought of a definition. I haven't considered that.
13:19:42 So I've drawn -- there's this principal
13:19:46 parallel plate capacitance here, and when you have one
13:19:50 long, extended plate, if you have the two plates that come
13:19:52 edge to edge, some people would call this fringe
13:19:54 capacitance, out to the sides, but when you have an
13:19:58 extended plate, sometimes a vernacular is to call is a
13:20:02 stray capacitance. It's not -- most people think of
13:20:04 edge-to-edge generating fringe.
13:20:08 Q. So let's say limiting to the definition, a
13:20:17 working definition of fringe --

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13:20:19 A. This is, in general, we're talking about?
13:20:21 Q. Absolutely.
13:20:21 A. Without respect to the '356 patent; is that
13:20:24 correct?
13:20:25 Q. Without respect to the effect on high
13:20:27 frequency performance.
13:20:28 A. Yes.
13:20:28 Q. So, limiting the definition of the
13:20:32 fringe-effect to the edge-to-edge relationship --
13:20:35 A. Okay.
13:20:36 Q. -- as opposed to stray --
13:20:38 A. Yes.
13:20:39 Q. -- or other things, could you draw maybe in a
13:20:41 different color --
13:20:45 A. I could use your blue pen if you want?
13:20:51 Q. Could you draw me the fringe effect
13:20:55 capacitances formed in Figure 2A?
13:20:58 A. Okay. Well, there would be this one here,
13:21:00 because we do have an edge-to-edge type relationship here
13:21:04 (indicating).
13:21:04 Q. And that's between Plate 10?
13:21:06 A. Prime.
13:21:07 Q. 10 prime and end of Contact 13?
13:21:10 A. Yes. Yes.
13:21:12 Q. And they're on different levels?

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13:21:14 A. They can be on different levels.
13:21:15 Q. They're offset?
13:21:19 A. Yes. I mean, principal, there could be one
13:21:24 between the facing edge of 12 and 13, but it's probably
13:21:28 unmeasurable because it would be terminated by Plate 10
13:21:31 prime, so it's arguable if it's of any significance.
13:21:35 Q. But since they are opposing edges, metal --
13:21:41 A. It wouldn't have any meaningful fringe
13:21:44 capacitance.
13:21:45 Q. What do you mean by meaningful fringe
13:21:51 capacitance?
13:21:51 A. Nothing measurable.
13:21:53 Q. What distance do you think they are at in this
13:21:58 figure?
13:21:58 A. I don't have dimensions, I can't tell. I
13:22:00 wasn't asked to analyze that. Generally when you have a
13:22:03 large plate coming out her, it will terminate all the stray
13:22:08 fields long before it gets to the other one.
13:22:09 Q. And by terminate, do you mean the capacitance
13:22:12 of that large plate, the parallel plate capacitance of that
13:22:17 large plate is much larger in farads than the value of the
13:22:25 fringe-effect?
13:22:25 A. Well, I'm saying there is a fringe capacitor
13:22:28 as we saw from the edge of 10 prime up to the edge of 13.
13:22:32 You notice 10 prime is connected to 12, so they're the same

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potential.
Q. Mm-hm (affirmative response).
A. So, I suppose in a most general sense you could say there is some residual capacitance between these two, but it probably wouldn't be measurable.
Q. When you saw measurable, what makes a capacitance measurable? Do you --
A. Put an AC current through and look at the reactance of it, one over a mega C. You could -- I'm trying to think of, charge it up and discharge it, look at the rate of discharge to a known resistor, put in a simulator, 3D simulator.
Q. What's a 3D simulator?
A. Like Ansoft Q3D is a good one. It solves Maxwell's equations. Actually, the HMSS product uses that one. Essentially solve Maxwell's equations or Faraday's law, you put in all the metal structures, and it solves all of the math between them and tells you what the -- it knows if you put a given charge on, what electric field is generated, and from electric field you get the voltage, and if you know the charge and the voltage, you can take the ratio and get the effective capacitance between them.
Q. I see. And when you say that it's not measurable, this fringe-effect between top edges of 12 and 13, you mean that under none of those methods you would get

any kind of result, or --
A. No. I was thinking of practical measurement equipment. It probably wouldn't be resolvable. It's there, but it's just so tiny that -- I'd be speculating at that point, if it's measurable, or not. I don't know the limits of the most current capacitance test equipment, if you could actually measure it or not.
Q. Okay.
A. So the principal one, the principal fringe capacitor would be the first one I drew there.
Q. But otherwise you would agree that between the top portions of 12 and 13 there would be a fringe-effect capacitance, whether it's measurable or not?
A. In a general sense.
Q. Under the laws of physics?
A. Yeah, under the laws of physics, there's something there.
Q. Okay.
A. It's probably of no use. It won't affect high per density performances claimed in this patent.
Q. With that caveat --
A. Okay.
Q. And so then moving down to -- are there any other fringe-effect capacitances in Figure 2A?
A. So are we throwing out the stray ones then?

Q. Stray ones are out just, I think limiting the fringe-effect to the edge to edge.
A. Okay. There would be that one from the very lowest plate. It doesn't have a label, but it's terminated on the left, which comes off of Contact 12, extends over, and then it goes, there be would a fringe capacitor, it's in a general sense to Contact No. 13, and then by the same argument, there would be one, in a general sense it's there's, but in a practical sense it's not of any significance, between the bottom inside corners of 12 and 13.
Q. And then would there be fringe-effect capacitance between traces, left and right traces 14?
A. Yes. But again, it's highly -- you'd have to have all the dimensions to know if it was important or not.
Q. But otherwise, it would be there. Okay. If we move to Figure 9A --
A. Mm-hm (affirmative response).
Q. -- and do the same, would you mark the fringe-effect capacitances on that figure that would exist there?
A. (Witness complies.)
Q. And could you tell me which ones you've --
A. Okay. I drew a small one from the top plate, the upper 11 plate, to the Contact 12. It's in the upper,

left-hand corner.
Q. What's the next one you drew?
A. I drew then between corner 68 and 66.
Q. Okay.
A. And then I drew them between the minor faces or edges, I would call them, of 74 and 72.
Q. Are there any other ones?
A. Again, you could argue there's a tiny one between here and here, but by the '356 definition, it wouldn't do anything. It's not there by that definition, because it's just too small.
Q. But otherwise, you also drew a fringe-effect capacitance created between bottom portions of contacts 12 and 13, between them?
A. Yeah. In a general sense, it's there, but --
Q. Okay --
A. But as far as '356, it doesn't exist.
Q. I understand.
A. It's just too small.
Q. And would the same hold true for the top portions of 12 and 13, the edges of contacts 12 and 13 on the top part?
A. Oh, yes. The same argument there.
Q. And can we turn the page to Figure 10A?
A. Mm-hm (affirmative response).

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Q. Could you tell me in this figure where the fringe-effect capacitances are?
A. Well, in the general sense, you'd have the very tiny ones; by physics they're there. By the '356 definition, you'd have some between 66 and 68 and 72 and 74, because they're close enough to affect the high frequency performance. So call them two classes of fringe-effect capacitance there.
Q. And how close are these 66 and 68 or 72 and 74 that you're saying that they fall into a different class of fringe-effect capacitances?
A. Close enough where they start to affect the high frequency performance, extend the bandwidth.
Q. And so what is that distance in Figure 10A?
A. I don't know, I don't have the dimensions. They didn't give them to me.
Q. So looking at Figure 10A, you can't say whether it's close enough or not close enough?
A. From the description in the patent, I know that they, the summary explains that they do bring them close enough together. There's one typical dimension given in the body of the effects on the order of two thousandths of an inch, but it's close enough to affect the high frequency performance of the capacitor.
Q. So two mils you're saying is --

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A. That is a number that appears in the summary. I don't know if it specifically refers to 10A, though.
The criteria that's given predominantly through '356 is that to be defined as a fringe capacitor in this claim, it has to have a significant effect. Well, significant's my word. Strike that.
Has to have an effect on the high frequency performance.
Q. And so sitting here today, would you be able to tell me what the sufficiently close distance at which -- what's the boundary between sufficiently close that it does have whatever high frequency effect and what's the distance that does not? Do you have that distance which you can give in your expert opinion?
A. I don't -- I can't give you --
MR. SCHATZ: Slow down and let me interject. Okay.
THE WITNESS: Okay.
MR. SCHATZ: I'm going to object. Are you asking in the form of distance?
MR. SLONIM: I think the witness has answered the question.
MR. SCHATZ: So I object to the question on the basis the question's vague.
Q. BY MR. SLONIM: Did you do anything to try to

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determine such a distance?
A. No, I didn't.
Q. Were you asked to do something --
A. No, I was not.
Q. Is that a subjective distance?
MR. SCHATZ: Objection. Vague.
THE WITNESS: What do you mean by subjective distance?
Q. BY MR. SLONIM: How would somebody else be able to distinguish between when two edges come too close to effect high frequency performance or are too distant that they do not? What's the operative test?
A. If you put the capacitor in to use a network analyzer, you'd have an interconnect through your lining, cut a gap in it far enough apart where essentially there's no signal getting through. You place this capacitor on top of there. What you can do is start with a gap too far, as it's shown in Figure 2A, I think, is that it? Yeah, 2A. You'll see at very low frequencies for maybe -- you'll see transmissions where the capacitor's functioning as it should. Eventually, there's a lot of signal loss. The capacitor stops performing as a capacitor, and looks like an inductor.
The '356 invention, as you close the gap up, you'll see signal strength increase as you bring the gap

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closer together, so you're improving the high frequency performance of the capacitor, so it would be a measurable way of doing it.
Q. Could you give me an example of the network analyzer that you were thinking in terms of this example, particular piece of equipment?
A. Yeah. An Agilent 8510, old Hewlett-Packard, 8510 network analyzer.
Q. And how is it configured? Any particular parameters that it has to have?
A. It measures what we call scattering parameters, or S parameters.
Q. And does it measure the S parameters for the multi-layer capacitor as a whole?
A. It can. You would have perform calibration, it's called, to get accurate parameters, so --
But even uncalibrated, you would see this effect. You could see the '356 gap affecting the high frequency performance.
Q. And when you said that you start with a distance that's too far, what is too far in terms of distances?
A. Here we go.
MR. SCHATZ: I'll object to the extent that the witness may not have performed this analysis.

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THE WITNESS: I have not. Yeah, I have not. This is a just a thought experiment, if you made a small change in plates, the separation on the one in Figure 2A, you'd probably see no significant change in the high frequency performance.

Q. BY MR. SLONIM: I don't want to interrupt you, but when you say plates in Figure 2A, are you referring to contacts 12 and 13?

A. Yes. Yes.

Q. So there you're saying that distance in Figure 2A is what you would consider too far?

A. Correct.

Q. And do you have any numerical failure for that too far distance?

A. I don't.

Q. And you've never considered what that too far would be?

A. I have not done the calculation; I was not provided the dimensions.

Q. And sitting here today, in your expert opinion, with all your experience in the multi-layer capacitor field, you cannot give me that distance when it's too far?

A. Well, what's too far?

Q. Is 30 mils too far?

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A. Depends on the other dimensions. What size is the whole capacitor? If the capacitor were a foot long, it's probably adequate. It's all a matter of ratios and proportions. So it's hard to give an absolute number without having all the dimensions.

Q. But otherwise, without having all the dimensions for Figure 2A --

A. Mm-hm (affirmative response).

Q. -- you can't say from your expert experience that in Figure 2A there would not be any effect on high frequency performance; there's something about Figure 2A that tells you that?

MR. SCHATZ: Objection.

Q. BY MR. SLONIM: Is that right?

MR. SCHATZ: Based on what the witness testified, he needs more information.

THE WITNESS: Yeah. It's just suggestive that the gap is so wide, like I said, the inner plates are closer to -- it just looks too wide to me to be useful at high frequency.

Q. BY MR. SLONIM: And the inner plates you started to say are closer to the respective opposing contacts? Is that what you're saying, that the distance between the end of a plate on the --

A. I can't tell without the dimensions because

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even though technically it's a fringe capacitor here, there might be so much inductance getting around the corner, it still might not help your high frequency performance, so without the dimensions, I just can't give you a hard number.

Q. And when you also said in your description of this test that you'd perform on the network analyzer, that you would start with a very low frequency. What is a very low frequency?

A. Oh, around a megahertz or so. A hundred kilohertz. Depends on your product that you're developing.

Q. So --

A. Some people, it's high frequency.

Q. I see. I see. So the frequency is a function of the application?

A. Application, yeah. Broadband digital system, a hundred kilohertz with be a fine lower frequency, a megahertz somewhere in there. Depends on the system, with that kind of number.

Q. I see. And so if you were testing Figure 2A, capacitor Figure 2A --

A. Yes. Yes. Essentially is a parallel plate capacitor without meaningful fringe capacitance.

Q. What would be the very low frequency that you would apply for this particular capacitor?

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MR. SCHATZ: Objection, calls for speculation. There's not enough information been provided.

THE WITNESS: Yeah, I don't know the value of the capacitance. You could give me a value of capacitance, and I could, but without that, I don't know.

Q. BY MR. SLONIM: Let's say a hundred nanofarads?

MR. SCHATZ: Objection, calls for speculation.

THE WITNESS: Yeah. So you want to know the lower frequency that I would test to.

Q. BY MR. SLONIM: I just want to understand exactly how you were testing, and you started with the distance between them, you said you can't estimate it. I'm now working through the terms that you've mentioned to make sure I understand what it is, and so the other expert can perform the same test and understand what --

A. I would start somewhere in the hundred -- depends. 8510 doesn't go down. I can remember the lower frequency range of 8510, because there's 8753, and that goes lower, but it doesn't go high enough. It would be around a megahertz, that kind of number.

Q. One megahertz, basically, around --

A. I'm just throwing that out.

Q. Around about one megahertz?

A. Yeah, I mean --

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MR. SCHATZ: Are you speculating?
THE WITNESS: I am.
MR. SCHATZ: Don't throw something out. Don't speculate.
THE WITNESS: Okay.
Q. BY MR. SLONIM: And when you said that in the process of this test you would observe a lot of signal loss, what amount of signal loss would you be observing?
MR. SCHATZ: Objection, calls for speculation.
THE WITNESS: Yeah, without knowing the value of the capacitance and all the paracytics, I don't know what the loss would be versus frequency. I don't have enough information to tell you that. Because you could have two capacitors of the same value that are built very differently, and then have wildly different figures, so I can't give you an accurate number.
Q. BY MR. SLONIM: So you're saying that two capacitors from say different manufacturers that have a hundred nanofarad capacitances could have vastly different asperometer data and performance values --
A. Yes, it's entirely possible.
Q. What is the reason that you haven't studied this test method that you're proposing for this claim construction?
A. I wasn't asked to do it.

Q. It was not your expert opinion that you needed to do that in terms of your own, before you proposed --
A. I did not believe -- no, I didn't think I need to do it. I wasn't asked to do it, so -- the '356 patent seemed clear enough, what we're getting at.
Q. Are you saying that the '356 patent talks about this method of analyzing this high frequency performance? If you could point me to the --
A. No, I didn't say that.
It's clear from reading the '356 patent how the intentional creation of fringe capacitance will affect the high frequency performance.
Q. What's intentional creation of fringe-effect capacitance? Are you referring to a particular figure?
A. Yes, like 10A.
Q. Okay.
A. Between 68 and 66 and 74 and 72.
Q. And these are the intentionally created fringe capacitance?
A. Yes, yes.
Q. How is it intentionally created? How are those intentionally created? Could you describe it?
A. To make the gap small enough to affect the high frequency performance.
Q. How do you distinguish between the

intentionally created fringe-effect from I guess the opposite would be a nonintentional?
A. Good question. If you read the patent, essentially you're trying to build an array of capacitors, I'm sure you've read that, of different values.
Q. Right.
A. The very smallest value one being due to this fringe capacitor, which is No. 79 in that drawing, so you need to close the gap up so that if you read the patent it talks about how it eliminates residences, parallel residences and decreases insertion loss at the upper frequencies.
Q. But my question was, how do you distinguish between an intentionally created fringe-effect and a nonintentionally created? Let's say I'm not the creator of the capacitor, I receive it as a finished product, how would I be able to understand which ones are in your classification, your expert opinion, the intentionally created ones versus the nonintentionally created?
MR. SCHATZ: Objection, asked and answered. Objection, calls for hypothetical for Dr. Godshalk to somehow put himself in the eyes of somebody else and hypothetically determine what their intention is.
Q. BY MR. SLONIM: You may answer.
A. Okay. Can you repeat it again, then?

Q. How do you distinguish between an intentionally created fringe-effect capacitance and a nonintentionally created fringe-effect capacitance?
A. Let me just go to the claim that refers to that.
Q. Absolutely.
A. Let's see. If you happen to have it bulleted. Here we go, in Paragraph 19. I think this wording pretty much answers your question here. The original ones, claim element says, "the second contact being located sufficiently close to the first contact to form a first fringe-effect capacitance with the first contact" and the definition helps answer your question even better, it says, "forming a capacitance between or proximate opposed ends of the first and second conductive contacts which affects the high frequency performance of the capacitor as a whole."
Q. Where are you reading, what paragraph?
A. Paragraph 19.
Q. But my question was, how do you distinguish between what you have called the intentionally created fringe-effect and a nonintentionally created fringe-effect? I don't see those words "intentionally created fringe-effect" in Paragraph 19, and that's my question.
A. I don't know if the patent actually -- is that even spelled out that it has to be intentional or not?

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13:47:39 It's just using it in a novel way to affect the high
13:47:43 frequency performance. That's an interesting -- it doesn't
13:47:48 say if it has to even be intentional, or not.
13:47:52 Q. So is it your opinion that it does have to be
13:47:56 intentional, as you've testified before, or it doesn't?
13:48:07 A. Does it have to be intentional or not. It
13:48:11 just has to affect the high frequency performance. I don't
13:48:15 know, are we debating if it's intentional or not? Is that
13:48:18 relative to the claim?
13:48:19 Q. You've used that phrase as -- it's two classes
13:48:24 of fringe-effect.
13:48:24 A. Yes.
13:48:25 Q. You called one class an intentionally created
13:48:29 fringe-effect.
13:48:29 A. Did I say that? I thought I said there was
13:48:31 stray and fringe, and then there was parallel plate.
13:48:35 Q. I'm pretty much saying that what you've said
13:48:37 before about intentional --
13:48:37 A. Did I say intentional?
13:48:39 Q. I believe you did.
13:48:40 A. Did I? I honestly don't recall if I said
13:48:44 intentional, or not. I'm sure you can find it. I just
13:48:48 don't know if I said that.
13:48:50 Q. You did. That was the --
13:48:52 A. What did I --

13:48:54 Q. You called the fringe-effect between 66 and 68
13:48:59 and plates 72 and 74 an intentionally created
13:49:04 fringe-effect.
13:49:04 A. Okay.
13:49:04 Q. And you contrasted that with --
13:49:06 A. Okay. I just couldn't remember.
13:49:09 MR. SCHATZ: I'll object. That was not
13:49:11 exactly what Dr. Godshalk said, so you're calling for
13:49:14 speculation on behalf of the witness based on
13:49:18 mischaracterization of earlier testimony.
13:49:23 THE WITNESS: It is understood in the '356
13:49:27 patent that a fringe capacitance exists between those
13:49:29 plates. The product is designed with intention of a fringe
13:49:38 capacitance being there that affects high frequency
13:49:42 performance.
13:49:43 Q. BY MR. SLONIM: And how would I distinguish
13:49:45 between what you've called the type of fringe-effect,
13:49:50 whether you call it intentional or some other term, that's
13:49:54 between 66 and 68, and let's say fringe effect between 12
13:49:58 and 13, either the top portion or the bottom portion, how
13:50:01 do I distinguish between those fringe effects?
13:50:04 MR. SCHATZ: Objection, asked and answered.
13:50:06 Q. BY MR. SLONIM: I don't see anything in
13:50:08 your -- is there anything in your expert opinion that helps
13:50:12 me understand what that distinction is and how --

13:50:16 A. Between intentional and nonintentional?
13:50:18 Q. Right, fringe-effect, two classes of
13:50:20 fringe-effect.
13:50:20 A. No. I don't think I describe that in here.
13:50:22 Q. Did you intend to describe that?
13:50:23 A. No, I didn't.
13:50:24 Q. Why not?
13:50:25 A. Because I didn't think that was actually the
13:50:28 central idea of the '356 patent. I think the central idea
13:50:32 is the novel use of fringing capacitance to affect the high
13:50:37 frequency performance.
13:50:42 Q. If you were looking at Figure 10B, what is
13:50:51 that?
13:50:51 A. That is the equivalent circuit of 10A.
13:50:56 Q. Could you show me on that Figure 10B the two
13:51:08 fringe-effect capacitances that you've described?
13:51:11 A. There's 79 between plates, lower plates 74 and
13:51:17 72, and then actually they're treating, in this example,
13:51:22 they have other ones later, between 66 and 68 they're
13:51:25 implying, actually, that is insignificant, that one,
13:51:28 because they're showing those, that capacitance terminating
13:51:32 in that floating plate in this example. Those would be
13:51:34 capacitors 69 and 67.
13:51:37 Q. So was your testimony incorrect, the prior
13:51:40 testimony that --

13:51:41 A. When I said between 66 and 68?
13:51:44 Q. -- intentionally created --
13:51:45 A. I was incorrect. I was looking at the drawing
13:51:47 here and, you know, I know it's between 72 and 74 is the
13:51:54 primary fringing capacitance.
13:52:00 Q. So you're changing your testimony that there
13:52:02 is only one fringe-effect?
13:52:03 A. In a general sense --
13:52:04 MR. SCHATZ: Objection, argumentative.
13:52:07 THE WITNESS: In a general sense, there's
13:52:09 fringe capacitance between 66 and 68. But in the '356
13:52:12 patent, yes, I'm amending my testimony, if you want to call
13:52:16 it that. It is apparently not significant in this example.
13:52:19 Q. BY MR. SLONIM: Were you able to verify that?
13:52:23 A. I'm going by their equivalent circuit diagram.
13:52:28 That is what I am basing that on.
13:52:29 Q. And how do you -- do you know how that
13:52:31 equivalent diagram was created?
13:52:33 A. I do not know.
13:52:35 Q. Do you know who created it?
13:52:37 A. I do not know.
13:52:38 Q. Before you placed your reliance on the
13:52:44 equivalent diagram that you don't know who created one, how
13:52:51 could you be sure that you can rely on it?
13:52:53 A. I'm going by what's presented in the patent; I

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13:52:56 feel that that's all I can do is trust what's in here.

13:52:59 Q. So if this diagram is incorrect and for some
13:53:04 reason omitted the fringe-effect capacitance between 66 and
13:53:09 68, would that change your opinion about fringe-effect in
13:53:16 66 and 68?

13:53:17 MR. SCHATZ: I'll object to the extent it
13:53:18 doesn't take into account the written description in the
13:53:22 '356 patent as well, so it's a hypothetical.

13:53:29 THE WITNESS: Yeah, and actually, this is --
13:53:33 it's not misleading necessarily, this drawing, and I don't
13:53:37 think there is a mistake here, because you could argue that
13:53:43 if there is fringe capacitance that is significant between
13:53:46 66 and 68, it is subsumed into capacitor 79, since they are
13:53:53 in parallel, so I think it's -- we can't make a decision in
13:53:55 this room without the designer and his dimensions here.

13:53:59 This -- this equivalent circuit accurately
13:54:06 describes what's shown in 10A. You could just modify the
13:54:09 value of 79.

13:54:13 Q. BY MR. SLONIM: And how would you modify the
13:54:16 value of 79 to account for the fringe-effect between 66 and
13:54:20 68?

13:54:23 MR. SCHATZ: Objection. Calls for a
13:54:25 hypothetical, and it's not something that Dr. Godshalk has
13:54:29 offered any testimony on.

13:54:30 THE WITNESS: Yeah.

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13:54:31 Q. BY MR. SLONIM: In your expert opinion?

13:54:33 A. How would I modify 79 to account for it
13:54:41 between -- I would have to measure the high frequency
13:54:48 performance.

13:54:50 Q. And where in the patent is this measurement of
13:55:04 high frequency performance described in detail?

13:55:06 MR. SCHATZ: Well, let's take a break so
13:55:08 Dr. Godshalt can review the entire patent and give you his
13:55:11 references, if that's what you're asking him to do.

13:55:14 Q. BY MR. SLONIM: You can take your time to
13:55:16 answer the question.

13:55:23 A. I was explaining what I would have to do.
13:55:27 That's how I would do it. I don't think it's described
13:55:30 measuring it in here.

13:55:32 Q. Would you agree that somebody else could not
13:55:39 understand how to do it based on the description of the
13:55:43 patent if you think it's not described?

13:55:45 A. I think it's very clear.

13:55:46 Anybody, I think a person who is qualified to
13:55:49 read this patent and use this product would understand it.

13:55:51 Q. Who is that person who is qualified, in your
13:55:54 opinion?

13:55:54 A. The credentials of that person?

13:55:57 Q. Right, to read that.

13:55:58 First of all, before you answer that question,

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13:55:59 did you spell out these credentials in your summary which
13:56:03 is Exhibit 3?

13:56:03 A. No, I did not.

13:56:04 Q. Why not?

13:56:05 A. It wasn't called for.

13:56:07 Q. It was not important for that, for your
13:56:10 summary?

13:56:10 MR. SCHATZ: Objection, mischaracterization of
13:56:12 the testimony.

13:56:12 Q. BY MR. SLONIM: Was it important for your
13:56:15 summary?

13:56:15 A. I made no judgment on whether it is or is not.

13:56:19 Q. But you had an opinion about, before you
13:56:22 drafted the summary, of what those -- what that educational
13:56:26 level and experience would be, had you?

13:56:28 A. I would assume that the person reading this
13:56:32 judgment was of similar qualification that read the patent.

13:56:37 Q. Correct.

13:56:38 My question was whether before you drafted
13:56:44 this summary, you had formed an opinion about what the
13:56:49 level of experience and education that person of ordinary
13:56:54 skill would have?

13:56:55 A. Yeah.

13:56:55 Q. Had you done that before this summary was
13:56:58 drafted? It's a yes or no question, as far --

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13:57:03 A. Yes.

13:57:04 Q. So you formed that opinion about the
13:57:06 educational qualifications before you drafted the summary,
13:57:09 but you didn't include that description of the level of
13:57:15 the --

13:57:16 A. Correct, I did not include it.

13:57:17 Q. Why not?

13:57:18 A. I didn't think it was necessary.

13:57:19 Q. Did you also include the, what the relevant
13:57:28 art or field is of this patent into your summary?

13:57:32 A. The intended use of the device, you mean?

13:57:37 Q. No. What the relevant field of the patent is,
13:57:42 because if we're talking about a person of ordinary skill
13:57:44 in the art --

13:57:47 A. No.

13:57:48 Q. -- what is the art? What is the relevant art?
13:57:50 You can take a look.

13:57:52 A. Let me look at it.

13:57:55 Q. Absolutely.

13:57:56 MR. SCHATZ: Is the question whether it is in
13:57:57 summary?

13:58:04 MR. SLONIM: Yes.

13:58:04 MR. SCHATZ: So the question is, is it in your
13:58:07 summary?

13:58:09 THE WITNESS: Is the level, what do you call

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13:58:14 it?

13:58:14 Q. BY MR. SLONIM: Level of --

13:58:16 A. Experience?

13:58:16 Q. -- experience and education of a person of
13:58:20 ordinary skill.

13:58:20 A. Yes. I don't recall it being in here.

13:58:23 Q. If you can --

13:58:25 A. But I can read through it and verify that
13:58:33 statement.

13:58:33 Q. I would appreciate that.

13:58:34 A. Okay. What I see is one skilled in the art
14:02:10 would understand the definition, and so forth. I don't see
14:02:16 a, in terms of what I remembered, I don't have a specific
14:02:22 block that gives the educational or experience requirement
14:02:25 of a person to understand this.

14:02:26 Q. So basically you're referring to an disclosed
14:02:33 person, by any definition, either by mean or by level of
14:02:36 experience and education?

14:02:37 A. It's one skilled in the art is -- that's what
14:02:40 I said.

14:02:41 Q. And is it fair to say that you also don't
14:02:43 define what the art is that you're referring to?

14:02:47 A. I would think it's assumed that it's people
14:02:51 who use these surface mount capacitors, or develop them.

14:02:55 Q. And what is that assumption based on, in your

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14:03:05 summary?

14:03:05 A. A person's read this patent is worried about
14:03:09 it, I would assume that implies some level of expertise.

14:03:13 Q. In what art?

14:03:17 A. Either creating capacitors or the use of them
14:03:20 in microwave circuits, fiberoptic circuits.

14:03:27 Q. But you didn't specify that explicitly in your
14:03:31 summary?

14:03:31 A. I did not specify it explicitly.

14:03:34 Q. Why not?

14:03:35 A. I just didn't think it was necessary. I
14:03:39 didn't think about it.

14:03:40 Q. And so, in your opinion, sitting here today,
14:03:46 the art, the relevant art of the '356 patent is the design
14:03:55 of the multi-layer ceramic capacitors; is that right?

14:03:58 MR. SCHATZ: Objection, mischaracterization of
14:04:01 the testimony.

14:04:02 THE WITNESS: I was giving you examples of
14:04:04 people who are skilled in the art.

14:04:06 Q. BY MR. SLONIM: Okay.

14:04:06 A. A person who makes these capacitors, I would
14:04:08 call them skilled in the art, but the other class would be
14:04:11 the user of these devices, that has to use them in their
14:04:14 systems.

14:04:15 Q. Could you give me the educational

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14:04:19 qualification of the designer of these capacitors which you
14:04:24 consider --

14:04:24 A. Sure. Yeah, somebody who used these?

14:04:26 Q. Somebody who designs multi-level capacitors.
14:04:29 I think we're going on -- you have two parts.

14:04:32 A. Yes. The user of the device and the creator
14:04:34 of the device.

14:04:36 Q. Let's start with the creator of the device.

14:04:38 A. I'm not in that business, so I don't know what
14:04:39 the minimum requirement is.

14:04:40 Q. And you have no expert opinion on that?

14:04:44 A. I don't. I think it's probably highly
14:04:48 variable.

14:04:48 Q. So now moving on to the user of the
14:04:56 multi-layer ceramic capacitors --

14:04:59 A. Yes.

14:04:59 Q. -- what are the educational and experiential
14:05:05 requirements for a user of multi-layer ceramic capacitors
14:05:09 to have ordinary skill in that art?

14:05:11 A. Yeah, where this would be understandable to
14:05:13 them?

14:05:13 Q. Yes.

14:05:14 A. I would say, a couple of examples.

14:05:18 One would be a person with a Masters Degree
14:05:24 with a concentration in microwaves or high frequency RF

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14:05:30 circuits, or fiberoptic circuits. Am I going too fast?

14:05:36 Q. Fine.

14:05:38 A. That had a Masters Degree in that field and
14:05:42 probably five years experience, for example.

14:05:46 Alternatively, it could be a person who got
14:05:48 their Doctorate in the area, and maybe they don't have much
14:05:50 work experience, but their thesis, if it was developing a
14:05:55 new fiberoptic system, they would have had to use devices
14:05:58 such as this, so they may have essentially no real work
14:06:01 experience, but have made up for it in their Doctoral work,
14:06:04 so I would say that's sort of entry level.

14:06:06 Q. And do you consider yourself to be one of
14:06:14 ordinary skill in the art that was using the multi-layer
14:06:20 capacitors?

14:06:21 A. On that, I feel, yes, I'm very experienced
14:06:23 there.

14:06:23 Q. Would you consider yourself to have a higher
14:06:35 level of skill than ordinary --

14:06:38 A. Yes.

14:06:39 Q. How would you describe your personal level of
14:06:43 skill in that?

14:06:44 A. Because I tried to build what Presidio did,
14:06:48 and did not succeed, by cobbling together other people's
14:06:52 capacitors as shown in Figure -- the way they show not to
14:06:58 do it. You don't have anything else exists on the planet,

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14:07:02 you do what you do. Figure 8A. Doing that back in the early 1990's, the technology just wasn't there; couldn't buy it.
14:07:21 Q. I can understand. So, if we can go back to Figure 10A --
14:07:28 A. Yeah.
14:07:29 Q. You're saying that the capacitance, fringe-effect capacitance shown as 79, is the capacitance, fringe-effect capacitance created between plate 72 and 74; is that right?
14:07:53 A. Yes.
14:07:54 Q. And it doesn't include any other fringe-effect capacitances within 79?
14:08:02 A. Well, as I said when I looked at it the first time, I know that 66 and 68 were close together, and --
14:08:17 Q. Okay.
14:08:18 A. You know, is it or is it not in 79? I wasn't there with the Devoes. I don't know if they've incorporated it in there, but I can tell you, it's primarily between 72 and 74. That's the intention of the drawing.
14:08:31 Q. Okay. I understand.
14:08:34 And what is the high frequency performance of that fringe-effect capacitance 79?
14:08:42 MR. SCHATZ: Objection, vague.

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14:08:44 THE WITNESS: I don't know the exact values of the capacitors, so I don't know how much it affects the upper frequency. I can't give you numbers because I don't know the values of this capacitor.
14:08:55 Q. BY MR. SLONIM: So how would you know without testing or having values whether it does or doesn't affect high frequency performance?
14:09:04 MR. SCHATZ: Objection, calls for speculation. Are you talking about a physical product that's been build to 10A?
14:09:09 MR. SLONIM: Yes, I'm talking about the capacitor as depicted in cross-section and Figure 10A.
14:09:15 Q. BY MR. SLONIM: How would you know that it does or doesn't have high frequency performance, that its fringe-effect capacitance, 79 in particular, does or doesn't have high frequency performance, if you cannot test it, didn't test it, why are you saying that it does?
14:09:34 A. Okay.
14:09:35 Q. What gives you basis to say that it does or doesn't?
14:09:39 A. Okay. Based on the drawing, location of capacitor 79, if you were to attach the capacitor at the bottom, there's minimal paracytics between the contact points and it. It's a very direct path for high frequencies to get through.

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14:10:04 Q. Is it the same type of path that you would expect between 66 and 68?
14:10:08 A. It's even shorter.
14:10:12 Q. Would the capacitance between 66 and 68 be the same, you expect it to be the same order of magnitude as --
14:10:27 A. No.
14:10:28 MR. SCHATZ: Objection, calls for speculation.
14:10:30 Q. BY MR. SLONIM: Why not?
14:10:31 A. Without knowing the dimensions, I don't know.
14:10:35 Q. But you're able to say definitively that it would not be the order of magnitude of the fringe-effect between 72 and 74?
14:10:43 A. Yeah.
14:10:43 MR. SCHATZ: Objection, calls for speculation.
14:10:44 THE WITNESS: Yeah, because you say order of magnitude, which means a factor of ten. I don't have the dimensions, so I can't give you a number. I don't have anything to calculate.
14:10:53 Q. BY MR. SLONIM: And so you have not seen any test results from which you can conclude that capacitance 79, fringe-effect capacitance 79 affects high frequency performance, have you?
14:11:10 A. No. It's what I've read in '356 patent.
14:11:12 Q. And does it present what the high frequency performance was for that capacitance, 79?

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14:11:21 A. It does not give it for this capacitor.
14:11:27 Q. So, if it doesn't give it for this capacitor, why are you saying that this capacitor, fringe-effect capacitance 79, has some high frequency performance?
14:11:40 MR. SCHATZ: Objection, asked and answered. It's in the literal terms of the '356 --
14:11:46 THE WITNESS: Yeah, they don't give a value for 79, if that's what you're asking.
14:11:50 Q. BY MR. SLONIM: Right. So if they don't give you a value, how can you say that it does have high frequency performance?
14:11:58 A. Well, they do talk about going to a 110 gigahertz. Now, it does not necessarily refer to Figure 10A, though, or 10B.
14:12:09 Q. Can you define high frequency performance without a number?
14:12:13 A. I think you could say relative to a capacitor without fringe capacitance, it has -- it improves the high frequency performance.
14:12:42 Q. What would you consider to be an improvement of high frequency performance?
14:12:49 A. Well, having --
14:12:56 MR. SCHATZ: I'm going to object. That calls for speculation, and that doesn't -- it's not impacted at all in the claim construction.

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14:13:05 Q. BY MR. SLONIM: You may answer.
14:13:07 A. I'd be speculating, though, if I give you numbers without the dimensions or the values.
14:13:15 Q. Well, I think the purpose of the claim construction -- or what do you understand to be the purpose of the claim construction?
14:13:21 A. To show what the novel aspect of the '356 patent is.
14:13:26 Q. Wouldn't that be the purpose of a novelty or validity analysis?
14:13:33 MR. SCHATZ: Objection, you're talking legal terms that are not contemplated by this witness. This witness is here today to provide what he believes to be the proper claim construction, definitions of claim terms.
14:13:46 Q. BY MR. SLONIM: What do you understand to be the link between novelty of the claims as you've described them, claim construction, in your expert opinion, as you sit here today?
14:13:59 MR. SCHATZ: Objection, objection.
14:14:00 Q. BY MR. SLONIM: As you've offered it in your summary to the Court.
14:14:04 MR. SCHATZ: Beyond the scope of this deposition.
14:14:09 The comparison of novel or the interrelationship between novelty and claim construction is

14:14:15 not an issue for this deposition.
14:14:20 Q. BY MR. SLONIM: You may answer. You just testified that you understand the novelty of the claims in form that forms part of your claim construction process of definition.
14:14:31 MR. SLONIM: Greg, would you repeat that for the record?
14:14:33 MR. AHRENS: I was talking to Brett.
14:14:35 MR. SLONIM: Oh.
14:14:36 MR. AHRENS: So, no thank you.
14:14:38 Q. BY MR. SLONIM: So, as you have just mentioned, what is your understanding of this relationship between what you call the novelty of the claims and the claim construction process that you've engaged for in this case for this Court?
14:14:57 MR. SCHATZ: Objection, beyond the scope of Dr. Godshalk's summary.
14:15:02 Q. BY MR. SLONIM: You may answer.
14:15:03 MR. SCHATZ: And beyond the scope of claim construction.
14:15:05 Q. BY MR. SLONIM: You may answer.
14:15:06 A. What I believe this is all about is how we're talking about how forming the capacitance between the proximate opposed ends of the first and second conductive contacts that affects the high frequency performance of the

14:15:22 capacitor as a whole. That's the first time I've seen that done.
14:15:25 Q. What is the first time you've seen that done?
14:15:27 A. Using fringe capacitance to achieve that.
14:15:31 Q. And you have seen that where?
14:15:37 A. In this patent (indicating).
14:15:41 Q. Have you seen any commercial products that achieve that?
14:15:46 A. No, I have not.
14:15:47 Q. Have you inquired whether there are any commercial products that achieve that high frequency performance that you were striving to achieve in 1990, as you described?
14:15:57 MR. SCHATZ: Objection, beyond the scope of this deposition. Dr. Godshalk does not have opinions nor has he rendered any opinions on that issue.
14:16:05 Q. BY MR. SLONIM: In your expert opinion, as an expert user of multi-layer capacitors, have you encountered any commercial products that --
14:16:18 A. I have not sought them out.
14:16:19 Q. Have you encountered them?
14:16:24 MR. SCHATZ: Same objection.
14:16:27 Q. BY MR. SLONIM: Can you give me an example?
14:16:30 A. Of --
14:16:32 Q. Of a commercial capacitor, multi-layer

14:16:35 capacitor, that gives you the novel high frequency performance as you've described about the -- in the '356 patent?
14:16:47 MR. SCHATZ: Objection.
14:16:47 Q. BY MR. SLONIM: That you've said the '356 patent gives you?
14:16:53 MR. SCHATZ: Objection. Dr. Godshalk is not here today to talk about those issues. It's not what this deposition is about.
14:16:59 THE WITNESS: Yeah, I would agree, I have not considered that. My focus has been the claim construction.
14:17:09 Q. BY MR. SLONIM: So if I wanted to apply your claim construction to something, how would I know whether a particular device, a particular multi-layer capacitor has or it doesn't have these features, the -- what you describe as novel features of high frequency performance from infringing?
14:17:28 MR. SCHATZ: Objection. What claim term are you referring to, applying what claim term?
14:17:32 Q. BY MR. SLONIM: You may answer.
14:17:33 MR. SCHATZ: Objection, vague.
14:17:34 THE WITNESS: Could you repeat the question again?
14:17:53 Q. BY MR. SLONIM: Yes, absolutely.
14:17:55 MR. SCHATZ: Let's take a break just for a

second. You can stay here.

THE WITNESS: Okay.

(A recess was taken from 2:17 p.m. to 2:26 p.m.)

Q. BY MR. SLONIM: My last question before the break to you was if one wanted to apply your claim construction to determine whether a particular device, particular multi-layer ceramic capacitor has a high frequency performance from a fringe-effect capacitances within it, how would one be able to apply your construction?

MR. SCHATZ: Objection, can you direct me to where Exhibit 3 Dr. Godshalk has offered an opinion on application of proposed construction?

Q. BY MR. SLONIM: Dr. Godshalk, do you understand that your construction in order to have meaning has to be capable of an application, in your expert opinion?

A. I hadn't thought about that. I didn't know that the rule is what your opinion has to be testable? Is that what you said?

Q. I'm saying do you understand that whether your construction can be applied by somebody else reading the summary of your opinion?

A. I understand that then.

Q. How could a person do that?

MR. SCHATZ: And again, could you please draw me to where in Exhibit 3, where in --

THE WITNESS: I didn't think it was required.

MR. SCHATZ: Let me finish.

-- where in Dr. Godshalk's summary of his opinions you are asking about.

MR. SLONIM: Brett, I object to your interruption and your demeanor toward Dr. Godshalk.

MR. SCHATZ: Well, thanks your gratuitous comments, but my objection's on the record.

MR. SLONIM: I think your anger with Dr. Godshalk is pretty palpable.

MR. SCHATZ: Thanks your gratuitous comments, but your comments are not accurate, and I would ask you to direct me where in Exhibit 3, which is the subject of this deposition, you are referring.

Q. BY MR. SLONIM: Dr. Godshalk, what do you understand the claim construction that you've given, would give to one ordinary skilled in the art?

A. That a fringe capacitor is used to improve the high frequency performance of this capacitor.

Q. Do you understand that the patent claims define the scope of the right to exclude others? They define infringement or noninfringement, do you understand

that, that the words as construed in the claims define if a device falls within the scope of the claims as they are construed, such a device would be considered to be an infringement of that claim? Do you understand that?

MR. SCHATZ: Object. Objection. Calls for a legal understanding beyond the scope of this deposition.

Q. BY MR. SLONIM: Is that your understanding, Dr. Godshalk, in your expert opinion, in offering your claim construction to this Court?

MR. SCHATZ: Same objection.

Q. BY MR. SLONIM: You may answer.

A. I'm not expert enough in the legal aspects to know that.

What my engagement here was to help clearly define these claims, to show what's unique about it, and in my opinion, uniqueness of the '356 patent is to create a capacitance between these proximate opposed ends of the first and second contacts that affects the high performance frequency of the capacitor. That was my engagement.

Q. So was your engagement to prove the novelty of that closeness of the opposed ends of the first and second conductive contacts?

MR. SCHATZ: Objection, goes beyond the scope of this deposition.

THE WITNESS: I want asked to prove it.

Q. BY MR. SLONIM: Why not?

A. I don't know.

Q. So could you clarify exactly what you mean your engagement was, connected to this novelty aspect?

A. Okay. I read through the prior art that was supplied with the '356 patent, and all of the materials provided by your company.

In my opinion, this is the first time I've ever seen someone take fringe capacitance which in a general sense existed a very long time, probably a hundred years. This is the first time where I've seen someone claim it to affect the high frequency performance of the capacitor as a whole. You build a networks out of these capacitors, and the fringe capacitance one takes care of the very highest frequencies, and I have not seen that in any other prior art.

Q. So you have not seen explicit references in the prior art patents to fringe-effect capacitances affecting high frequency performance; is that --

A. Exactly.

Q. Does that mean that in the prior art patents or capacitors there was no such effect?

MR. SCHATZ: Objection. Could you please call me to the location of Exhibit 3 where Dr. Godshalk has rendered an opinion regarding that issue?

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14:32:12 Q. BY MR. SLONIM: You may answer.
14:32:14 A. I have not seen in any other prior art a claim of using fringe capacitance to affect the high frequency performance.
14:32:22 Q. And does the absence of such a mention, of such an effect between fringe-effect capacitance and high frequency performance of the capacitor as a whole mean that it was absent from the prior art --
14:32:37 A. I can't -- I would have to speculate. I do not know.
14:32:39 Q. So sitting here today, you don't know one way or another?
14:32:45 A. Correct.
14:32:46 Q. But it would not be impossible that if somebody didn't mention the effect of high frequency performance, the effect of fringe-effect capacitance on high frequency performance, that that effect was there, it was simply not mentioned; is that a possibility?
14:33:05 MR. SCHATZ: Objection, calls for speculation. By the very question you're asking for a possibility, and that, in and of itself, calls for speculation.
14:33:12 THE WITNESS: Yeah, I think it's --
14:33:13 Q. BY MR. SLONIM: In your expert opinion.
14:33:14 A. Yeah, it's too speculative for me to answer. I don't know.

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14:33:17 Q. How would you need to test a capacitor of a prior art, let's say a Monsorno capacitor, would you say a Monsorno capacitor -- you've said you are familiar with the Monsorno patent?
14:33:34 A. Mm-hm (affirmative response).
14:33:35 Q. Would the capacitor, the Monsorno capacitor, have a high frequency effect?
14:33:39 MR. SCHATZ: Objection, beyond the scope of this deposition.
14:33:41 THE WITNESS: I don't know. I don't have the dimensions, I haven't done the calculations. It's not claimed in that patent.
14:33:46 Q. BY MR. SLONIM: Do you understand that it would have high frequency performance?
14:33:49 A. I don't know.
14:33:51 Q. Let me direct your attention to Exhibit 1, which is the 356 'patent.
14:34:03 A. Okay.
14:34:03 Q. And could you read into the record Column 2, Lines 45 through 57?
14:34:13 A. Column 2.
14:34:14 Q. Lines 45 through 57.
14:34:22 A. Mm-hm (affirmative response). I see that.
14:34:29 Q. Oh, I'm sorry. Let's see. Lines 58 through Column 3, Line 5, starts with Figure 4A.

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14:34:49 A. Mm-hm (affirmative response).
14:34:52 Q. Could you please read that into the record aloud?
14:34:55 A. Okay. "Figure 4A shows a second alternative capacitor structure developed by American Technical Ceramics Corporation and described in detail in US Patent No. 5,576,926. This structure includes a layered ceramic chip having an internal conductive plate, 30, positioned to overlay conductive plates 32 and 33 extending along an outer surface of the device from conductive end terminations 34 and 35. As before, the conductive end terminations may be readily soldered to the traces 36 of a surface mount circuit board. As seen in Figure 4B, the net effect is a series combination of two capacitors, between the conductive ends and the device. As in this case there is a series combination of capacitors (which has a lower capacitance value than either capacitor individually), the device has good high frequency performance but relatively low capacitance value."
14:36:06 Q. Do you understand that the reference to Figure 4 in the American Technical Ceramics patent, and I refer to it by the last three digits, '936 as a reference to the Monsorno patent?
14:36:21 A. I do.
14:36:21 Q. And so does reading this passage that says the

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14:36:25 device has good high frequency performance suggest to you that the Monsorno patent and the Monsorno capacitor as described in it had a good high frequency performance?
14:36:41 MR. SCHATZ: Objection. It's beyond the scope of claim construction.
14:36:46 Q. BY MR. SLONIM: You may answer.
14:36:47 A. It's not like the '356 patent. The '356 patent is broadband performance. This may just have good performance at a very narrow range of frequencies, just by the very fact that it's a low value capacitor and had nothing to do with fringe capacitance.
14:37:11 Q. Do you believe that the '356 patent truthfully describes that the Monsorno patent --
14:37:20 MR. SCHATZ: Objection.
14:37:21 Q. -- device has good high frequency performance as it states in Column 3, Line 4?
14:37:27 MR. SCHATZ: Objection. Please call my attention to Exhibit 3 wherein Dr. Godshalk has offered testimony regarding that issue.
14:37:35 Q. BY MR. SLONIM: You may answer.
14:37:36 A. I don't have an opinion on that. I didn't write it, so --
14:37:42 Q. You didn't write your summary?
14:37:43 A. I didn't write the '356 patent. You asked is it truthful what they wrote?

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14:37:50 Q. Yes. Do you believe that?
14:37:51 A. If it -- well, not for the reasons that the '356 patent works.
14:37:58 Q. I don't understand your answer.
14:38:01 Do you mean that the Monsorno device has good high frequency performance, at least based on this very quote about the Monsorno device from the '356 patent?
14:38:19 MR. SCHATZ: Objection, beyond the scope of the claim construction and beyond the scope of Dr. Godshalk's testimony.
14:38:24 THE WITNESS: Since it doesn't have -- mention fringe capacitance at all, I don't have an opinion on it.
14:38:34 Q. BY MR. SLONIM: So even seeing that the inventors of the '356 patent told the world and this Court that the Monsorno patent has a good high frequency performance you don't know whether the Monsorno device has a good high frequency performance?
14:38:53 MR. SCHATZ: Same objection.
14:38:54 THE WITNESS: I have not personally used this device, so I can't personally say that it does.
14:38:58 Q. BY MR. SLONIM: What is your expert opinion about that?
14:39:00 MR. SCHATZ: Same objections, beyond the scope of this deposition and Dr. Godshalk's opinions.
14:39:06 THE WITNESS: I have no opinion on this

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14:39:08 capacitor.
14:39:10 Q. BY MR. SLONIM: Do you mean that if you haven't personally done something you can't offer an opinion about that?
14:39:21 A. I'll have to study this.
14:39:26 Q. You've told us that you've read this patent many times before?
14:39:36 A. I have.
14:39:38 Q. And you've also told us that you believe that the depictions in Figure 10B and others would give you the basis to form an opinion that something has high frequency performance.
14:39:51 A. Okay. I can say --
14:39:55 MR. SCHATZ: What's the pending question?
14:39:56 MR. SLONIM: I think Dr. Godshalk wants to finish his answer.
14:40:01 MR. SCHATZ: Well, as I understand it, the objection is beyond the scope of claim construction, and any testimony that, or opinions that Dr. Godshalk has offered relative to claim construction.
14:40:12 MR. SLONIM: Mr. Schatz, I think you are objecting on the record in an inappropriate fashion, trying to interrupt the deposition, and I would ask you not to do it any further. I think we'll have your standing objection about your view that this is beyond the claim construction,

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14:40:31 and I think we can ask the Court whether the Court views that as beyond the claim construction because as far as I understand the description of the Monsorno device uses the very words high frequency performance with a qualifier good that Dr. Godshalk offered in his claim construction, and I want to understand what would that mean.
14:40:54 MR. SCHATZ: Well, that's not what you asked.
14:40:56 MR. SLONIM: We're getting there. You interrupted me, and Dr. Godshalk, also.
14:41:06 THE WITNESS: So, where were we at?
14:41:08 Q. BY MR. SLONIM: So do you agree that the Monsorno device, at least based on the description by the inventors of the '356 patent, in Column 3, Line 4, that the device has good high frequency performance? Do you agree that it has a good high frequency performance?
14:41:30 A. I can't -- all I can -- all I can agree is that's what the '356 patent says. That's what I can agree to. That's what it says.
14:41:36 Q. Do you agree that in your expert opinion, based on the description it does have --
14:41:42 A. I don't know the dimensions of it. If it was a huge capacitor, it wouldn't have good high frequency performance. I'd need to know the dimensions of it and do the calculations.
14:41:50 Q. But let's say based on the description in

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14:41:54 Line 3, if you could turn to that, in Column 3, Line 4 where it says the device has good high frequency performance, based on that description, do you believe that that device does, in fact, have good high frequency performance as described by the inventors of the '356 patent?
14:42:16 MR. SCHATZ: Objection, asked and answered.
14:42:18 THE WITNESS: What I would agree is what it says in the '356 patent, it has good high frequency performance, but relatively low capacitance value.
14:42:26 Q. BY MR. SLONIM: I understand that.
14:42:29 And when it says, the '356 patent about the Monsorno device, has good high frequency performance, is that the same high frequency performance that you were referring in your claim construction when you mentioned the same words, high frequency performance?
14:42:43 A. No.
14:42:44 Q. Do you agree that those words are the same, that this phrase uses high frequency performance and you --
14:42:53 A. I say affects the high frequency performance.
14:42:55 Q. So the high frequency performance is used in both your construction --
14:42:59 A. All it says is high frequency performance. This says good high frequency performance, but there's a

qualifier, that it's a relatively low capacitance value, and we don't have that limitation on this claim.
Q. But if we focused on the three words, high frequency performance, in your construction and in Column 3, Line 4, is it the same high frequency performance?
A. I wouldn't -- you can't make that judgment because we don't know the values, because this is qualified that it's a low value capacitor.
Q. So using the same words could have vastly different meanings; is that what you're telling me?
MR. SCHATZ: Objection, asked and answered.
THE WITNESS: Yeah. I don't -- I just don't think that we can make a valid comparison, since this one's qualified to be for a low value capacitance, a low capacitance value.
Q. BY MR. SLONIM: But the high frequency performance that that -- that phrase is the same both in your construction and the claim, and in Line 4 of Column 3 --
A. Well, there's three words that are the same.
Q. -- with a qualifier?
A. There's three words that are the same.
Q. They're the same?
A. There are three words that are the same,

they're in the same order, high frequency performance.
Q. Do they mean the same thing, in your expert opinion?
A. No.
Q. Why not?
A. Because this is qualified to be a relatively low capacitance value, and that limitation is not in this claim.
Q. And how would that limitation make a difference between the same words high frequency performance as used in your construction and high frequency performance as used in Column 3, Line 4?
MR. SCHATZ: Objection, relevant to claim construction, it's an issue for novelty.
Q. BY MR. SLONIM: What's your expert opinion?
A. Okay. Can you please repeat that?
Q. Absolutely. And how would that limitation --
A. Of the low value capacitance.
Q. -- of the low value capacitance make a difference between the meanings of the seemingly identical phrases, high frequency performance, in your claim construction and in the description of the Monsorno device in the '356 patent by its inventors where they say it has good high frequency performance?
MR. SCHATZ: Same objection.

Q. BY MR. SLONIM: You can answer.
A. In the '356 patent we're referring to a broadband capacitor. That's what makes it so different than the small value capacitor. It's a well known physical fact as you go, tinier capacitors go higher in frequency, but that may not meet the need of the user. This is not as versatile an invention as the '356 invention.
Q. How do you know that the Monsorno device does not have the broadband characteristics? I thought that you told me that --
A. Because it's a small value capacitor.
Q. And by small value capacitor, what do you mean by that?
A. You need a lot of capacitance to go low in frequency. If you read the '356 patent, it's a broadband device because it's an array, an integrated array of capacitors, large capacitors, medium, and then finally the very tiniest ones formed by fringe, so it has a broadband, this one does not, so, to me they're not relevant, I mean, they're not the same.
Q. If you were to look at Column -- at the language of Claim 1, could you read -- and that's in Column 12, could you read me where the word broadband capacitor?
A. Where are you? Which line? 12?

Q. It begins on Line 59. What is Claim 1?
A. Okay.
Q. What I want to know is if you could read me from Claim 1, where in Claim 1 it requires the capacitor of Claim 1 to be a broadband capacitor?
MR. SCHATZ: If you want to conserve time, we'll stipulate to the fact that the word broadband does not appear in Column 12, 59 through Column 5, Line 13.
THE WITNESS: Yeah. It's in the title of the patent and mentioned numerous times in the summary. I thought the summary is supposed to support the claims, so --
Q. BY MR. SLONIM: But you would agree that in Claim 1, the capacitor of Claim 1 is not required to be a broadband capacitor?
MR. SCHATZ: Objection to the extent there's a difference between whether that word appears or whether it's required. It's two totally different things.
Q. BY MR. SLONIM: Does the word "broadband" appear in Claim 1?
A. It does not appear, the word "broadband" does not appear in Claim 1. But what does appear in Claim 1 is the second contact being located sufficiently close to the first contact to form a first fringe-effect capacitance with the first contact, and that gives -- that's what

affects the high frequency performance, that is the essence of the '356 patent, and it's unique. It's not claimed by anyone else?

Q. And so what is the -- are you reading the word broadband into the claim, into Claim 1, if it doesn't appear there, in your expert opinion?

A. I wasn't necessarily reading broadband into it. I was reading affects the high frequency performance.

Q. And what makes you say that the affects high frequency --

A. These are highly subjective. We talk -- we use the word high frequency, what does Monsorno mean by high frequency? What does the '356 patent mean by high frequency?

Q. Could you answer your last question, what does the '356 mean?

A. That's what I say, we don't have the numbers to compare with each other. The only numbers we have -- we don't have a number for the Monsorno patent. He doesn't give a high frequency number.

Q. Do we have a number in the '356 patent?

A. They do mention 110 gigahertz in the summary.

Q. Is that the high frequency, 110 gigahertz?

A. It's high frequency to me.

Q. For any application whatsoever?

A. No. It depends on the application. To an audio engineer, two megahertz would be high frequency. That's why the Monsorno one may be -- what is high frequency? Maybe it goes to 10 megahertz. We don't know.

Q. Would 109 gigahertz be high frequency?

A. For a fiberoptic system it would be at the upper end of what they need.

Q. Does high frequency as used in the '356 patent and in your construction, is it only 110 gigahertz?

A. No.

Q. How would you know, do you have a list of, or a definition of high frequency as you use it in your construction?

A. Depends on the application. I don't have a list.

Q. And you have not mentioned any particular applications in your summary, have you?

A. I have not.

Q. Would that be in order to give more meaning to your construction so somebody could apply it and know whether for an automotive capacitor it is high frequency --

A. I don't see what that had to do with the claim construction, so I didn't think that anything like that was necessary. I think what we're trying to understand is how -- or claim, is how the fringe capacitance affects the

high frequency performance of the capacitor as a whole, and then you build this array, this integrated array of ceramic capacitors and get this broadband of performance. That's what I have not seen in any other patent.

Q. But you cannot put any numerical limitations on what a high frequency performance is?

A. Numerical limitation. It's not my place to do in regards to this claim construction.

Q. Well, I think as an expert in claim construction and in this field, you came here today to --

A. We're not claiming high frequency, any high frequency value in this patent. We're saying that it affects the high frequency performance, so I don't really -- is that germane to it?

Q. You tell me.

A. The number? I don't think so.

Q. You tell me.

A. I think that --

Q. Let's say you were not the developer of this construction, and you saw this construction, and you needed to understand whether a particular device affects high frequency performance. What would you need to know about the device to understand whether it falls within your construction?

A. What I would be more worried about is what

they talk about in the '356 patent, the absence of resonance, or nols, and the minimizing insertion loss, which they do by building this array of capacitors.

Q. How would I be able to measure whether a particular capacitor has what you say is high frequency performance?

A. I don't think they've done that in the patent.

Q. If you don't give me a number, is there any other way to express the high frequency performance, other than give me a number?

A. Well, one thing is you want to make sure there aren't suck-outs or resonances.

Q. What do you mean by suck-outs or resonances?

A. It's shown here in the '356 patent, Figure 21A. Like here would be like two, a large value capacitor and some smaller value capacitor that aren't matched, well, you end up getting a suck-out. That's the loss. There's a lot of loss there. In the '356 patent, by building an array of capacitors, large, medium to small, you can eliminate those dips or minimize them. And a measurement you can make on this network analyzer I was talking about.

The Monsorno patent wouldn't do that. It's just one capacitor. You'd have this big old dip down low frequency. That's why it's not the same as this.

Q. So to sum it all up, you can't give me a

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14:53:03 definition of the term high frequency performance as you have used it in your construction for the claim construction purposes of the '356 patent, sitting here today?
14:53:15 MR. SCHATZ: Objection, objection. Mischaracterization of the testimony.
14:53:17 THE WITNESS: I would give -- okay, I will give you a definition.
14:53:20 An integrated array of capacitors that has minimized resonances or suck-outs as we call them. They call it resonances in here, in the '356 patent. That is a good definition of high frequency performance.
14:53:37 Q. BY MR. SLONIM: What does it mean to minimize? Can you quantify what to minimize means?
14:53:43 A. I can tell you what bad would be.
14:53:51 Q. Why don't you answer my question.
14:53:54 Can you quantify what to minimize is?
14:53:55 A. There I'm giving you value, without knowing the application. I'd have to work on that.
14:54:22 Q. You can't do it sitting here today?
14:54:25 A. No, without -- I don't know the tolerance of the system, so you're asking such an open-ended question. Some systems can handle plus/minus three db, some could handle as bad as plus/minus 10, some would work at plus/minus one; it's so system specific.

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14:54:37 Q. So in order to be able to apply your definition --
14:54:41 A. Yeah.
14:54:41 Q. -- of the high frequency performance, a lot of other data about the system has to be specified; is that a fair statement?
14:54:49 A. Yeah. You need to know the flatness of the insertion loss that they require.
14:54:55 Q. And so reading your opinion in the summary which is Exhibit 3, I would not be able to apply it?
14:55:01 A. Right, because that wasn't the scope of this claim. The claim was using fringe capacitance to affect the high frequency performance.
14:55:08 Q. I don't understand your answer.
14:55:11 A. The claim that we're talking about now that we're on I think, is the concept of using the fringe capacitance to affect the high frequency performance of the capacitor as a whole.
14:55:28 Q. And so reading your summary of that claim construction for that element, without additional data about the system and db loss and all the other dimensions --
14:55:43 A. I'm just speculating.
14:55:44 Q. -- there is no way to apply your construction; is that a fair statement?

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14:55:46 A. My construction can be applied and that if you're using fringe capacitance to affect the high frequency performance, that is the application.
14:56:09 Q. What is high frequency as you use it --
14:56:13 MR. SCHATZ: Objection, asked and answered.
14:56:14 Q. -- in your claim construction of the '356 patent?
14:56:16 A. It would be -- I can tell you what it's above.
14:56:26 Q. Give me your definition.
14:56:27 A. Above 10 or 20 gigahertz.
14:56:38 Q. Is it above 10 gigahertz?
14:56:44 A. I'm just speculating if I give you a number.
14:56:48 Q. You did not form an opinion about what high frequency is when you gave the claim construction that you proposed in your summary, Exhibit 3 --
14:57:01 A. Let's look.
14:57:02 Q. -- using the term high frequency.
14:57:04 A. All right. If we go through the '356 patent we'll find in here that I was comfortable with the frequency range they discussed in the summary, because really what we're discussing here is how the fringing capacitance affects the high frequency with regard to an integrated capacitor array, getting rid of the suck-outs.
14:57:52 Q. I understand. And by the summary of the invention, are you referring to Column 4, Line 25 through

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14:57:58 Column 5, Line 5?
14:57:59 A. Yeah, that's what I'm looking through. I'm trying to remember, maybe I'm wrong and it's not in there. I was just wondering whether the dates of frequencies in here. Here you go. Furthermore, here we go. Let's see, I'm looking at Column 4, the paragraph that starts at Line -- Sentence 4. Let me just see if it's in there.
14:58:17 Q. Column 4, Line 4?
14:58:18 A. Yeah. Starting in that area. Here we go. This gives the gist of it pretty well.
14:58:25 "While parallel capacitor combinations such as shown in Figures 8A and 8B have been used with some success in commercial devices, these combinations suffer from a number of drawbacks. First, the measured capacitance of these parallel combinations exhibit variations (resonances and dropouts)" -- that's what I was talking about -- "likely due to a mismatch between the resonances of the effective L-R-C circuits that are created by the parallel connected capacitors. Furthermore, the upper frequency response of even these parallel combinations may not meet the requirements of very wide band (gigahertz) devices in current use. Also, the mechanical stacking," blah, blah, blah. That was where they said gigahertz. Somewhere else in here they give a -- they give a range up to 110 gigahertz.

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14:59:17 Q. So in that sentence that you read that begins with furthermore they offer frequency response, that sentence doesn't say high frequency performance, does it?
14:59:28 A. It says very wide band devices.
14:59:32 Q. Does it say high, that this is, the band is high frequency, does it?
14:59:36 A. Well, wide band, he says gigahertz, the implication there being high frequencies.
14:59:41 Q. And so what's that band? Could you give me the upper and lower limit of that band?
14:59:46 A. Oh, gigahertz -- okay. Very wide band is not a specific band. Gigahertz just means above one gigahertz in the gigahertz range. It could be up to 110 gigahertz. Some people are building circuits at 220 gigahertz.
14:59:59 Q. Is 220 gigahertz high frequency as you've defined it in your claim construction?
15:00:09 A. I didn't define it in my claim construction, so --
15:00:12 Q. Would .1 gigahertz be high frequency?
15:00:17 A. To an audio engineer.
15:00:23 Q. Would it be to anybody?
15:00:25 A. Yeah, well, to an audio engineer it would be quite high. Let's see. I'm finding another part that gives, mentions it. There's one here on Column 6 near the bottom, 64, Line 64, "When the multiple capacitors have

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15:00:45 peak performance areas that are closely spaced in the high frequency (gigahertz) range of operation, when combined, the result can be a flatter frequency response than is possible in prior approaches of stacking multiple discrete ceramic capacitors such as shown in Figures 8A and 8B."
15:01:03 I would totally agree with that. Here we go, here's some numbers coming up.
15:01:07 Here we go. Column 7, Line 14, "Further, if the capacitance in the lower value, high frequency lower section is made to have a capacitance of about 82 picofarads, the insertion loss plot of Figure 21B is relatively smooth over a frequency range of about 10 kilohertz to 10 gigahertz and higher."
15:01:36 So there's a hard number for you.
15:01:38 Q. So what is high frequency based on that passage that you --
15:01:42 A. I'd say 10 gigahertz or higher.
15:01:46 Q. Would 1 gigahertz be high frequency, based on that definition?
15:01:54 A. I don't think this is a definition, so -- depends on the application, as I said, to an audio engineer that would be crazy high frequency.
15:02:03 Q. So would your construction then need you have additional language in it to specify for particular applications what the high frequency would be?

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15:02:13 A. No, because high frequency is not the scope of the '356 patent. It's the integration of the capacitors to get a smooth insertion loss response. And you can move that all around. You could have it where it's tapering off at a hundred megahertz or you could maybe push it up to 110 gigahertz, but the trick is they're offering broadband performance. For us to nail it down to one particular frequency, that's not right, because if you change the value of the capacitors, that will move up and down in frequency.
15:02:39 Q. And I'm trying to even understand in relevant terms what high frequency would be, how you determine whether something affects high frequency.
15:02:52 Could you tell me what an effect, numerically, what an effect on high frequency would be?
15:03:13 Could you give me a numerical explanation of what you mean by an effect on high frequency?
15:03:19 A. I can give you an example.
15:03:20 Q. Could you give me a definition?
15:03:22 A. No. Because the definition changes with the system.
15:03:24 Q. And so sitting here today you cannot give me a definition of what you meant when you used the words affect high frequency performance of the capacitor as a whole --
15:03:38 A. Okay.

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15:03:39 Q. -- in your claim construction; is that right?
15:03:42 A. Okay. Now I can. Okay. I've been hearing you a little wrong.
15:03:49 What they mean by the high frequency would be the highest usable frequencies of the device. You could call it -- divide it roughly into low frequency, medium frequency and high frequency.
15:04:01 The capacitor that they've come up with will operate over this large broadband. That's why it called a broadband capacitor, would you agree, a low frequency chunk, a middle and a high.
15:04:11 The fringing capacitance is affecting the high end of that. Does that help? It doesn't affect the medium, the middle or the low.
15:04:19 Q. And how do you define in numbers what the low portion is, between what and what?
15:04:29 MR. SCHATZ: Objection, asked and answered.
15:04:30 Q. BY MR. SLONIM: You may answer.
15:04:37 A. You know, it's a gray boundary between them. You could divide it roughly into --
15:04:46 Q. As used in the '356 patent and your construction now that you're explaining --
15:04:51 A. They don't give a hard definition of where the boundary is between medium frequency and high frequency. It's not specified.

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MR. AHRENS: Let's take about a five-minute break. This is just going back and forth with talking over and she's just getting absolutely overwhelmed by the fact that you're both talking at the same time. Let's just take about a five-minute break and just relax.
THE WITNESS: Okay. Okay.
MR. SLONIM: It's about as good time as any.
(A recess was taken from 3:05 p.m. to 3:15 p.m.)
Q. BY MR. SLONIM: So, can you give me a boundary between what you've described as the low frequency and medium frequency?
A. I can't, because it's so application specific, it changes.
Q. So how would one, applying your construction and needing to know what the low frequency is, the medium frequency, and the high frequency, be able to determine which, whether that person is applying your construction?
MR. SCHATZ: Objection, vague.
Q. BY MR. SLONIM: You may answer.
A. I wasn't -- I wasn't asked to work on that at all, so I haven't formulated an opinion on it.
Q. And as you sit here today, do you understand now that in order to have a meaningful construction, construction has to be able to be applied or quantified,

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and you could -- and you should be able to use that construction to decide whether a particular capacitor falls within that construction or does not? Do you understand that sitting here today now?
MR. SCHATZ: Objection. Calls for a legal conclusion, and it's a misstatement of the law.
Q. BY MR. SLONIM: You may answer.
A. I understand what you're saying, but I don't have an opinion today on that.
Q. And you haven't offered that opinion in your summary?
A. I have not offered that opinion.
Q. And when you said the -- what's the -- could you define the boundary between medium frequency and high frequency, as you've mentioned in explaining your construction?
A. That's -- it's a vague term. You know, I'd have to know the exact frequency spectrum that it's over, and then you could divide it out, so it's totally subjective, so I don't have -- I can't answer that then.
Q. So, somebody else would --
A. Yeah. A system designer could -- sorry, talking over him.
Q. So somebody else trying to work or classify frequencies into low frequency, medium frequency and high

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frequency can arrive at a different ranges than you would based on your construction; is that right?
A. I think that if they divide it into the three, if we were given the same system constraints, we would probably come up with nominally the same boundaries, but is this --
Q. Is there something in your construction that predetermines how one would be able to define the medium and the high frequency -- differentiate between medium and high frequency, reliably?
A. I haven't thought about that. I don't have an answer for you at this moment.
Q. So is the answer no?
MR. SCHATZ: Objection, asked and answered.
THE WITNESS: No.
Q. BY MR. SLONIM: What do you mean by that no?
A. You asked if it was a yes or a no.
Q. It's a no?
A. It's a no.
Q. So sitting here today, you cannot define or teach one how to determine the difference between a medium frequency and a high frequency?
MR. SCHATZ: Objection, compound.
Q. BY MR. SLONIM: As you've offered it in your construction?

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MR. SCHATZ: Objection, compound question.
THE WITNESS: Well, I haven't focused on that to answer this claim construction, so I don't have an answer for you right now on it.
Q. BY MR. SLONIM: And when you mention the highest usable frequency, what does that mean?
A. I have -- I don't remember the context that I used that in. Can you remind me?
Q. Is it your expert opinion that the term affects high frequency performance means affects highest usable frequency, that the fringe-effect affects highest usable frequency?
A. In this capacitor --
Q. Yes.
A. It does.
Q. In this claim? In this claim?
A. Yeah. It's for the upper frequency range of this broadband device.
Q. Upper frequency range?
A. High frequency.
Q. Do you have any numerical limitations for the upper frequency range?
A. No, again, because it's a factor --
MR. SCHATZ: Objection, asked and answered.
Q. BY MR. SLONIM: You may answer.

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15:21:37 A. Well, I think I already answered that before, that it's dependent on the capacitor value and application.
15:21:42 Q. So sitting here today you cannot tell me what the upper frequency portion, as you've said?
15:21:48 A. I cannot.
15:21:49 Q. And what is the highest usable frequency of the capacitor? What's the definition of that part?
15:21:57 A. That would be system specific how much loss you can tolerate at a given frequency, so there's no hard answer for it.
15:22:12 Q. Is there any answer for that?
15:22:19 A. There's an answer for every application of the device.
15:22:25 Q. So sitting here today, you cannot say what the definition of the highest usable frequency is?
15:22:32 MR. SCHATZ: Objection, mischaracterization of the testimony.
15:22:38 Q. BY MR. SLONIM: You may answer.
15:22:39 A. Yeah, I don't have answer for you right now.
15:22:41 Q. Can I, in one instance understand that if the capacitor without fringe-effect has -- goes up to let's say nine gigahertz --
15:22:57 A. Okay.
15:22:58 Q. -- and if you introduce fringe-effect and now you've measured the frequency performance of the capacitor

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15:23:07 as a whole at nine and a half gigahertz, is, in my example nine and -- the half of a gigahertz above nine, is that now the highest usable frequency, as you've mentioned in your claim construction?
15:23:25 MR. SCHATZ: Objection, calls for speculation.
15:23:35 Q. BY MR. SLONIM: You may answer.
15:23:37 A. Yeah, I would just be speculating at this point if I gave you an answer.
15:23:41 Q. Am I right about my understanding of your highest usable frequency, or not, in my example?
15:23:53 MR. SCHATZ: Objection, you're asking him to speculate as to whether you're right, and you haven't said what you are --
15:24:01 Q. BY MR. SLONIM: In your expert opinion?
15:24:02 A. What you said isn't complete enough for me to --
15:24:35 Q. What else do you need to know?
15:24:37 A. We need another to know the insertion loss versus frequency for the A, B example.
15:24:44 Q. And how would the insertion loss define the highest usable frequency?
15:24:54 A. Okay. In a capacitor such as the '356 patent covers -- again, to say nine gigahertz, that's dangerous, because I don't know what the upper end of the whole capacitor rate goes to. Does it go to 12 gigahertz or a

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15:25:31 hundred gigahertz? If you're giving me a number that's in a mid range, it won't make any change at all, so we're just throwing numbers around right now.
15:25:41 Q. Assuming that the highest number without the fringe-effect is nine gigahertz, do I understand you correctly that if you were to introduce the fringe-effect into that capacitor, and now the capacitor as a whole goes to nine and a half gigahertz, is that additional half a gigahertz above nine gigahertz what you would call the highest usable capacitance? Highest usable frequency? I apologize.
15:26:19 MR. SCHATZ: Objection, calls for speculation.
15:26:21 THE WITNESS: Yeah. Without knowing the system, I just don't feel comfortable answering that one. I just don't have enough information to give an intelligent answer on that.
15:26:32 Q. BY MR. SLONIM: So does that mean, your inability to give an intelligent answer about an example of a, or a definition of the highest usable frequency, does that also mean that the Court cannot rely on your definition of the highest usable frequency, in your opinion?
15:26:53 A. Will they be asking about that in regards to this claim?
15:26:59 Q. Absolutely.

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15:27:00 A. Expected result of adding fringe capacitance, such as described in the '356 patent, would be a reduction in insertion loss at the highest frequencies that it's being used at.
15:27:29 Q. What's a reduction?
15:27:30 A. Less loss.
15:27:31 Q. By how much?
15:27:34 A. It's frequency dependent.
15:27:38 Q. Let's say --
15:27:42 A. That would be totally speculative at this point.
15:27:44 Q. At nine gigahertz --
15:27:46 A. Yes.
15:27:46 Q. -- what would be the reduction in insertion loss?
15:27:48 A. That, I can't answer without knowing the impedances of the system, and that is unfair to ask, so --
15:27:54 Q. At 15 gigahertz, what would be the reduction in insertion loss?
15:28:00 THE WITNESS: I don't know the capacitance.
15:28:00 MR. SCHATZ: Objection, calls for speculation.
15:28:02 THE WITNESS: Yeah, I really seriously don't have enough information. I don't think any engineer would unless he knows the capacitance values and the network that it's used in, that is not answerable sitting here. We

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could prepare it. That's a good one to think about, to do work on.

Q. BY MR. SLONIM: And so would it be a fair statement that your construction of this claim element that says affects high frequency performance of a capacitor as a whole would not be able to be applied without additional information and work to be performed?

A. To give you --

MR. SCHATZ: Objection, vague. What do you mean by applied?

Q. BY MR. SLONIM: You may answer if you understand the question.

A. I would have to have more specific information on the system you're talking about to give you a meaningful result. I think the Devoes cover it pretty well in their patent, what it does for you.

Q. But does the patent define what a high frequency is or high frequency performance?

A. I think they do.

Q. Could you tell me what that definition is as you understand it?

A. The reduction, paraphrasing a little here, we've read it before in here, the reduction of the -- did they call it suck-outs, or dropouts, the reduction of the dropouts in higher frequency and lowered insertion loss,

and I totally agree with that.

Q. How would that correlate with your concept of highest usable frequency, the reduction in insertion loss?

A. Well, I don't say highest usable frequency anywhere in my report.

Q. You've mentioned it about a half hour ago in trying to define your, give more meaning to your construction.

A. But I don't think it's relevant to my construction because we're not talking about -- we're talking about the high frequency performance.

Q. What is it, when you say affects high frequency performance, does it -- what kind of effect is required?

MR. SCHATZ: Object, asked and answered.

THE WITNESS: Yeah, I think I just answered that in my testimony two questions ago --

Q. BY MR. SLONIM: If you could repeat that?

A. -- about the dropouts.

Q. If you could repeat that answer. What kind of --

A. Reduction. She has it on the machine there, if we can pull that out.

Q. Can you repeat that answer?

A. Well, I probably won't say it verbatim.

Q. We would understand in substance.

A. Reduction of the dropouts, or minimizing them, I don't remember what word I used, and lowered insertion loss.

Q. And how much -- is it supposed to be a positive effect on high frequency performance?

A. It's beneficial.

Q. So it would exclude a detrimental effect on high frequency performance?

A. So this claim excludes detrimental affects is what you're asking?

Q. My question is, when you say in your claim construction --

A. Yes.

Q. -- fringe affect capacitance affects high frequency performance, does it cover a detrimental effect on high frequency performance?

A. Well, the intention is to improve high frequency performance.

Q. So what's the answer to my question?

Does it cover detrimental effect on high frequency performance, or not?

It's a yes or no question.

A. It discusses detrimental performance, minimizing it. The terms they use is improving

performance.

Q. But you didn't use the words in your claim construction about improving high frequency performance?

A. I don't think I have to. Affects. I mean, you could affect positive or negative if you were so inclined.

Q. And I'm trying to understand whether your construction means is it a positive effect?

A. I had no meaning either way. It's a fact that the fringe capacitor will affect the high frequency performance. I didn't say if it would be positive, you know, beneficial or detrimental, though. I did not.

Q. And so sitting here today, what is your opinion what your claim construction covers, whether that covers the phrase affects high frequency performance of the capacitor as a whole, whether that covers a detrimental effect or negative effect?

Does it or does it not, your construction as you offer it to the Court?

A. Well, it covers both.

Q. But you just testified that the intent of the patent was only to cover positive effects of the --

A. I don't think I used the word only. I didn't say only, did I?

Q. What is your understanding that the patent was

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intended to cover?
A. Okay. Making sure you're done.
That the Devoes discovered that this fringing capacitance, could affect the high frequency performance in a positive way, reduction of insertion loss and reduction of these dropouts. So I think that -- does that finalize that part of it? I mean, have I been clear on that then?
Q. So does it mean that the effect on high frequency performance has only -- only has to be a positive effect?
A. No, I don't think I can make a statement on that. I mean --
Q. In your expert opinion on your construction?
A. That's a -- the effect has to be positive.
Q. I'm trying to understand whether your construction is limited by the fact that the Devoes invented, allegedly, the positive effect on high frequency performance, whether your construction necessarily has to be limited to only positive effects, because the way I read your construction now, it could cover any effect, and I'm trying to understand, is it limited to any particular effect or not?
A. The intention is improved performance. Does that answer the question?
Q. No. In terms of construction.

MR. SCHATZ: Objection, asked and answered.
Q. BY MR. SLONIM: In terms of your claim construction, does it cover negative effects on high frequency performance?
MR. SCHATZ: Objection, asked and answered.
Q. BY MR. SLONIM: You may answer.
A. I think I just answered it that it's for improved performance.
Q. So is the answer no to my question?
A. Does it cover --
Q. Negative effects or detrimental effects --
A. Negative effects.
Q. -- on high frequency performance?
MR. SCHATZ: Objection, asked and answered.
THE WITNESS: I thought I just answered that I said it covered improved.
Q. BY MR. SLONIM: Is the answer to my question no?
A. So no meaning it does not cover negative effects?
Q. Correct.
A. I hadn't thought about that side of it.
Q. So sitting here today, you cannot say whether your construction covers negative effects on high frequency performance; is that a fair statement?

MR. SCHATZ: Objection, asked and answered.
THE WITNESS: That is a fair statement.
Q. BY MR. SLONIM: If you could look in Exhibit 1, the '356 patent, at Figure 10A, what do you understand -- I'm looking at pad 72 and 74.
A. Mm-hm (affirmative response).
Q. What do you understand to be in the gap between 72 and 74?
A. Hm.
Q. Do you understand it to be air?
A. I have made no assumption.
Q. Is it, from your reading of the patent, what is your understanding of that gap?
A. Well, in this specific figure, it does not discuss it at all.
Q. Would it be a reasonable assumption to say that if there's no dialectric shown in the gap between pad 72 and 74, that this is air?
A. I have no opinion on it. I think that would be --
Q. Is that a reasonable assumption for an expert and one of ordinary skill in the art?
MR. SCHATZ: Objection, asked and answered.
Q. BY MR. SLONIM: You can answer.
A. I don't think there's enough information to

make a determination of what's in the gap in this drawing.
Q. But would it be fair to say that the dialectric that's present between 66 and 68 is not in the gap between 72 and 74?
MR. SCHATZ: Objection, asked and answered.
THE WITNESS: The drawing does not show the same dialectric in the gap, but it doesn't mean it couldn't be put there; again, I don't know, there's not enough information in this drawing.
Q. BY MR. SLONIM: But as this drawing exists now, is that a fair statement about this drawing?
A. Oh, that the same dialectric --
Q. That there is a different dialectric?
A. Oh, I don't think you could say it would be different. They just may have not shaded it in, so, I don't know.
Q. So you would expect that this drawing may be inaccurate if something hasn't been shaded in?
A. A lot of things can happen to a surface mount capacitor when it's put on a circuit board.
Q. As it exists here, without mounting it.
A. Well, from the drawing --
Q. Yes.
A. I do, it does look different in the gap between 66 and 78 versus 72 and 74, it's not the same

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15:40:15 crosshatched pattern, I can agree with you on that.
15:40:18 Q. And would the fact that it's not the same
15:40:21 crosshatched pattern imply that there is a different
15:40:25 material in the gap between 72 and 74?
15:40:30 A. I can't make that assumption.
15:40:31 Q. On Figure 10A?
15:40:32 A. Yeah. That, I don't think it's fair to say,
15:40:34 and I can't speculate on that because the Devoes in some
15:40:39 parts of the patent talk about embedding the plates in
15:40:41 dialectric or not, so, for me to say they did or didn't put
15:40:45 in dialectric would be speculation, so I can't give you an
15:40:49 accurate answer on that.
15:40:50 Q. So how would one looking at Figure 10A and
15:40:55 trying to understand what it is, be able to make a fair
15:40:58 judgment on this question whether the same material or
15:41:02 different material is present in the gaps between 66 and 68
15:41:08 on one hand and 72 and 74 on the other hand?
15:41:11 MR. SCHATZ: Objection, calls for speculation.
THE WITNESS: I don't think it's possible.
15:41:13 MR. SCHATZ: And it's outside the scope of
15:41:15 Dr. Godshalk's summary on claim construction.
15:41:20 Q. BY MR. SLONIM: You may answer.
15:41:21 A. Yeah, I don't think it's possible to know from
15:41:22 the drawing.
15:41:23 Q. So you would need additional information from

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15:41:32 the Devoes in order to understand that?
15:41:33 A. Yeah, the -- that was not the central idea of
15:41:40 the patent. What they're talking about is the infringing
15:41:44 capacitance as -- if the dialectrics are the same or
15:41:46 different, I don't think that materially affects the
15:41:48 patent.
15:41:48 Q. So you would say that the dialectrics between
15:42:10 72 and 74 on one hand and 66 and 68 on another hand has
15:42:19 nothing to do with this patent?
15:42:21 MR. SCHATZ: Objection. And it's beyond the
15:42:24 scope of what's in Dr. Godshalk's Summary of Claim
15:42:27 Construction Opinions.
15:42:30 THE WITNESS: Yeah, I hadn't considered that,
15:42:32 so I don't have an answer on that.
15:42:33 Q. BY MR. SLONIM: If you can't rely on the
15:42:43 drawing Figure 10 for deciding whether there is the same
15:42:50 dialectric or different dialectric, how could you even tell
15:42:56 whether a conductive plate as shown in 10 or 10 prime or 11
15:43:04 or 11 prime is inside or outside the dialectric body?
15:43:09 MR. SCHATZ: Objection, beyond the scope of
15:43:10 Dr. Godshalk's Summary of Claim Construction Opinions.
15:43:14 Q. BY MR. SLONIM: What in Figure 10A would tell
15:43:17 you that?
15:43:19 MR. SCHATZ: Same objection.
15:43:21 THE WITNESS: Yeah, I would defer the

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15:43:23 description of the invention in the '356 patent. I think
15:43:28 it's adequately described in there, dialectrics.
15:43:31 Q. BY MR. SLONIM: Can you answer my question?
15:43:36 Is there something about -- how would you be
15:43:43 able to tell whether a figure accurately describes a
15:43:46 particular plate as within or outside of the dialectric
15:43:50 body if you can't say from the hatchings and absence of
15:43:55 hatchings whether the materials are different?
15:43:57 MR. SCHATZ: Same objection, beyond the scope
15:43:58 of Dr. Godshalk's Summary of Opinions.
15:44:01 THE WITNESS: Yeah, it is beyond the scope of
15:44:03 what I was asked to do, but I'd recommend reading this
15:44:06 patent summary because I think it's pretty accurately
15:44:09 described in here.
15:44:10 Q. BY MR. SLONIM: So you can't answer my
15:44:11 question?
15:44:11 A. Read the patent and see what they say.
15:44:14 Q. No, my question is, how can you, as an expert
15:44:16 witness, if you are unable to tell me whether what's
15:44:21 depicted in Figure 10A about dialectric materials in the
15:44:27 gaps is accurate or not, how could you then tell me, for
15:44:31 example, whether a conductor, let's say 10 or 10 prime, is
15:44:40 within the dialectric body or outside of the dialectric
15:44:45 body, for example?
15:44:47 MR. SCHATZ: Objection.

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15:44:47 Q. BY MR. SLONIM: Based on that figure?
15:44:49 MR. SCHATZ: Objection, mischaracterizes the
15:44:51 testimony. Dr. Godshalk did not testify he was unable to
15:44:54 do anything. He just testified he doesn't have an opinion
15:44:56 and hasn't prepared an opinion on that issue.
15:45:02 Q. BY MR. SLONIM: You may answer.
15:45:02 THE WITNESS: That is true, I have not
15:45:03 prepared an opinion on this, since I didn't think that this
15:45:06 was relevant to the claim construction.
15:45:10 I could read the patent and come up with an
15:45:12 opinion for you. I think it's described accurately in the
15:45:18 patent.
15:45:19 Q. If you can turn to Column 7, Lines 50 through
15:45:35 56.
15:45:36 A. Okay.
15:45:37 Q. And could you read the Lines 50 through 56
15:45:46 that begin with "This additional capacitance is shown" into
15:45:49 the record aloud?
15:45:50 A. Okay. "This additional capacitance is shown
15:45:54 in dotted outline in Figure 10A, reflecting that the fringe
15:46:00 capacitance between plates 72 and 74 may be relatively
15:46:07 small compared to the other parallel plate capacitances in
15:46:10 the remainder of the lower section 62 of the device.
15:46:16 However, this capacitance may well affect the very high
15:46:19 frequency performance of the device."

Q. So based on that description, would you understand that the frequency, that the fringe-effect between plates 72 and 74 is lower than the fringe-effect between plates 66 and 68?
MR. SCHATZ: Objection, assumes facts not in evidence.
Q. BY MR. SLONIM: You may answer.
A. Yeah, I don't have, without knowing the thicknesses of the metal, I don't have enough information to compute it in the dialectric values, so I don't know.
Q. And this statement that you've just read from Column 7, Lines 50 through 57, does not inform your expert opinion whether that --
A. Okay, I'll read it here again. All we can make a decision from that paragraph is that it's smaller than the other parallel plate capacitance, so we can't make a judgment on fringe capacitance between what you said, 66 and 68, there's no information given on that.
Q. And the Devoes in their patent, in the '356 patent, did not give any dimensions or thicknesses of dialectric materials, particularly for Figure 10A; is that right?
A. I believe that to be correct.
Q. And when they say in the last sentence of that excerpt, "However, this capacitance may well affect the

very high frequency performance of the device," do you understand that to be a prediction of the effect?
MR. SCHATZ: Objection, calls for speculation.
Q. BY MR. SLONIM: What's your expert opinion based on this phrase that the capacitance may well affect without a definite will affect?
A. I think it's a reasonable assumption.
Q. Is that your understanding?
A. Yes.
Q. So is that a reasonable understanding that the Devoes in the '356 patent, at least for Figure 10A, did, when they drafted this patent, did not know whether or not there would be an effect on high frequency performance of the capacitor built in accordance with the Figure 10A?
MR. SCHATZ: Objection, calls for speculation.
THE WITNESS: I can't answer that. Yeah, I wasn't -- I don't know what their thought process was at the time.
Q. BY MR. SLONIM: Based on the description that we've just read?
MR. SCHATZ: Same objection.
THE WITNESS: I do not believe there's enough information there for me to make that determination.
Q. BY MR. SLONIM: Do you see any data about high frequency performance of the capacitor built in accordance

with Figure 10A in the patent?
MR. SCHATZ: Objection, vague. What do you mean by data?
THE WITNESS: Do you mean dimensional data?
Q. BY MR. SLONIM: What data would you need to define or quantify the high frequency performance of the capacitor of Figure 10A, you as an expert witness --
A. Okay.
Q. -- offering claim construction here today to the Court.
A. If I were forced to do it, I would want to build the capacitor as is shown, and then with all the gap section ripped out, or widened significantly.
Q. And so what would be the numerical values? So what data would you be accumulating in order to decide whether the Figure 10A has high frequency performance or doesn't?
A. I would expect the high frequency performance to suffer and be affected. You wouldn't -- you'd have increased insertion loss at the higher frequencies.
Q. Do you see the data about the insertion loss for capacitor Figure 10A in the patent?
A. Another fact could be the dropouts.
Without having the data, though, that -- I can't give you hard numbers. What they show here to me is

slightly higher, so it would be less loss, smooth one versus here, but they don't have numbers, so it's pure speculation. We would need to get their graphs with the numbers. We would have to have the Devoes produce this information.
Q. And by this, you were pointing to Figures 21 --
A. 21A.
Q. And 21B?
A. Correct.
Q. And you've characterized that as speculation without numbers?
MR. SCHATZ: Objection, mischaracterization of the testimony.
Q. BY MR. SLONIM: Is that right?
A. I can't make a decision because I don't have -- there's no data on axes, so it would be irresponsible for me to make a pronouncement based on no numbers. They're just lines on a graph.
Q. It would not be scientific?
A. I agree with that.
Q. And would you also agree that nowhere in the patent do the Devoes provide any numbers for the insertion loss or high -- other aspects of the high frequency performance of the capacitor as a whole for any of the

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15:52:55 capacitors drawn in Figures from 9A on?
15:53:01 MR. SCHATZ: Objection, beyond the scope of
15:53:03 the deposition and Dr. Godshalk's opinions.
15:53:05 Q. BY MR. SLONIM: And you can review your expert
15:53:08 opinion, the patent, if you need to refresh your
15:53:12 recollection about such graphs or data presented.
15:53:17 A. I think I see the same data you do, if I read
15:53:20 this, so --
15:53:21 Q. And so my understanding of the patent is that
15:53:24 I don't see that data, other than that graph and graphs in
15:53:29 21A and 21B that do not have any numbers on them, I don't
15:53:34 see any other data about insertion loss for any of the
15:53:37 capacitors drawn in this patent.
15:53:41 Is that your understanding, also?
15:53:42 A. It is.
15:53:43 Q. And I don't see any data about any other
15:53:52 aspect of high frequency performance, aside from the
15:53:57 insertion loss in the patent for any of the capacitors
15:54:01 drawn in that patent that would have any numbers or hard
15:54:07 data. Is that your understanding, also?
15:54:09 MR. SCHATZ: Objection, beyond the scope of
15:54:11 Dr. Godshalk's testimony on claim construction.
15:54:17 THE WITNESS: You know, we can read the same
15:54:19 patent, and there is some data in here up to 110 gigahertz.
15:54:23 He does talk about broadband performance from 400 some

15:54:26 kilohertz out through 110 gigahertz, which I think is --
15:54:31 that's pretty revolutionary performance.
15:54:36 Q. BY MR. SLONIM: But there is no graph showing
15:54:38 where, how that 110 gigahertz point is achieved or where it
15:54:45 is on a curve?
15:54:46 A. Mm-hm (affirmative response).
15:54:47 Q. There is no curve showing 110 gigahertz in
15:54:50 this patent, is there?
15:54:51 A. I agree with your assessment of the patent
15:54:55 that way, there is not a graph with that on it.
15:54:58 Q. And what does it mean in the patent in that
15:55:03 Column 7, Line 56, 55 and 56, where it says, "However, this
15:55:12 capacitance may very well effect the very high frequency
15:55:17 performance," what's the difference --
15:55:19 MR. SCHATZ: Objection.
15:55:20 Q. BY MR. SLONIM: -- in your expert opinion
15:55:22 between high frequency performance and the very high
15:55:25 frequency performance?
15:55:27 MR. SCHATZ: Objection. That's a misquote of
15:55:29 the specification.
15:55:30 Q. BY MR. SLONIM: If any?
15:55:32 A. Let's see. Since he doesn't contrast it with
15:56:04 other frequencies, I don't think I can answer your
15:56:08 question.
15:56:08 Q. What contrasting would you need from the

15:56:20 Devoes in order to be able to answer my question?
15:56:22 A. If they could provide insertion loss, they
15:56:30 mention there 110 gigahertz capacitor, then they go to 10
15:56:36 gigahertz -- you'd want to see a graph of a capacitor with
15:56:43 and without the gap plotted together with the same
15:56:47 capacitance value.
15:56:48 Q. And by the gap --
15:56:52 A. The fringe capacitor.
15:56:53 Q. Referring to Figure 10A, this would be the gap
15:56:58 between 72 and 74?
15:56:59 A. Mm-hm (affirmative response).
15:57:00 Q. Wouldn't, based on your claim construction,
15:57:20 wouldn't the fringe effect affecting high frequency
15:57:22 performance have to be formed between contacts, and my
15:57:28 understanding of the word contacts in this pad is that the
15:57:32 contacts are pieces 12 and 13.
15:57:38 Do you also understand that pads, external
15:57:43 pads 72 and 74 are also contacts, within the meaning of
15:57:48 this patent?
15:57:54 A. I do.
15:57:55 Q. So what is your opinion then about elements 12
15:58:03 and 13? Are they also contacts in this patent?
15:58:07 A. They are.
15:58:07 Q. And would you agree that the patent does not
15:58:18 refer to elements 72 and 74 as contacts?

15:58:24 A. I think it refers to it as external plates; is
15:58:32 that correct?
15:58:32 Q. That's my understanding.
15:58:33 A. Yes, but when certain capacitors form, the
15:58:42 metal of 12 and 13 essentially fuse with that of 74 and 72,
15:58:48 making one conductive structure, which you can call a
15:58:52 contact. That's how it's -- that's the spirit of it in
15:58:54 this patent.
15:58:55 Q. Let's, instead of the spirit of the patent,
15:59:02 can we talk about claim construction?
15:59:05 A. Sounds great, let's do that.
15:59:06 Q. I thought that's what we were doing for four
15:59:10 hours.
15:59:10 A. Well, it seems like -- okay, never mind.
15:59:16 Q. So you're saying the pads, pad 74 is fused to
15:59:23 element 12, contact 12? Is that your opinion? Figure 10A?
15:59:28 A. Here it is, reproduced on the cover here; for
15:59:32 electrical purposes, yes.
15:59:33 Q. And how is it fused?
15:59:37 A. Very mean; is it called sintering process, I
15:59:43 believe. I'm not sure. That's outside of my area of
15:59:47 expertise.
15:59:47 Q. And would you say -- how would you describe
15:59:52 this fusing between pad 72 and contact 13? Is that also
15:59:59 outside of your area?

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16:00:00 A. 72 and 13.
16:00:01 Q. 72 and 13 would be also outside of your area of expertise?
16:00:04 A. I don't know the chemistry behind it. That's what I meant when I said it's outside my area of expertise. I can't give you the exact chemical process that it goes through. But in my opinion, they form one conductive structure, 72 and 13, but electrically they are the same.
16:00:32 Q. Do you expect -- what does it mean to be electrically the same, in your expert opinion?
16:00:39 A. If you apply a signal on contact 13 or that conductive material, that it will also appear on 72, that exterior plate.
16:00:52 Q. And by signal, do you mean voltage?
16:00:55 A. Could be a sinusoidal voltage.
16:00:58 Q. And so you would expect contact 13 and plate 72 to have the same voltage, the same charge?
16:01:09 A. Not necessarily a direct current, but at ACRF frequencies.
16:01:21 Q. So there are special cases of being electrically similar? Is that what you're trying to tell me, there are differences between types of currents?
16:01:29 A. Yes.
16:01:32 Q. Could you explain that?
16:01:33 A. Say you put a small film, you could have

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16:01:34 potentially a small film between 72 and 13, but it could be so small that at microwave frequencies it's transparent.
16:01:46 Q. What is your understanding from reading the patent? Is there such a separator between 72 and 13?
16:01:55 A. Not to my knowledge.
16:01:56 Q. So with that understanding, that there is no separator, when you say they are electrically similar, you said? What does that electrical similarity mean?
16:02:11 A. If there was no separator?
16:02:14 Q. Correct.
16:02:14 A. Then if you apply voltage at 13, whether it's DC, direct current, or AC, it should appear both on 13 and 72, it should be the same.
16:02:28 Q. And would it be also true that if you applied the same voltage to 13, you would expect to see the same voltage not only on 72, but also on plates 11 and 11 prime?
16:02:41 A. Assuming there's no conductive film or anything --
16:02:46 Q. Correct.
16:02:46 A. Then, yes.
16:02:47 Q. And so under that definition would plates 11 and 11 prime also be contacts as you have defined them?
16:02:56 A. No, because they're interior to the device.
16:03:03 Q. And so how does being interior to the device change whether they're contacts or not, since you've said

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16:03:16 contacts means being at the same voltage?
16:03:19 A. The difference is that 72 or 13 could be connected by a user. May not be advised to connect to 72, but he could get at it. They could not get at 11; it is sheltered inside the device, so it cannot be a contact.
16:03:36 Q. And by connecting by the user, do you mean connected to a printed circuit board?
16:03:51 A. That would be one example.
16:03:54 Q. Or let's say more general, an external conductor?
16:03:57 A. Yes. You could connect the two together.
16:04:03 Q. And that connection you would expect typically to be by soldering?
16:04:08 A. Solder or solder paste, some conductive material.
16:04:13 Q. But you said that it is not recommended that the pads 72 and 74 be so connected; is that right?
16:04:23 A. I don't know.
16:04:26 Q. In your expert opinion, why would it not be recommended?
16:04:30 A. In my expert opinion --
16:04:33 Q. Yes.
16:04:34 A. -- you'd want to maintain the integrity around the gap would be my expert opinion.
16:04:39 If you shove solder in there, it's not going

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16:04:41 to work very well.
16:04:42 Q. And by gap, you mean gap between 72 and 74?
16:04:46 A. I do.
16:04:47 Q. And what is the importance of maintaining that gap?
16:04:50 A. To maintain the fringing capacitance value that gives the desired high frequency performance.
16:05:00 Q. And so if you filled that gap with solder, you would expect that there will be no fringe effect in that gap?
16:05:10 A. Actually, the whole capacitor would be shorted out, it wouldn't work anymore, because 12 and 13 would be connected together through that.
16:05:24 Q. Would you expect that if the gap between 12 and 13 on the bottom is also filled with solder, that the capacitor would also short?
16:05:35 A. Can you please show me here?
16:05:38 Q. The orange gap between 12, at 12 and 13, is filled with solder, but the gap between 72 and 74 is not, would that also be, would short the capacitor, since --
16:05:56 A. If you completely had solder where I drew my orange line, it would short it out, if that was completely soldered; you can have -- if that would allow the solder to creep in a little to here, it probably wouldn't hurt it at all.

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16:06:14 But that's about as far as I can go without
16:06:16 speculating on its performance, and giving you hard
16:06:21 numbers.
16:06:21 Q. And so in your understanding of what the word
16:06:35 "contact" in Claim 1 means, would you say that it has two,
16:06:46 at least two functions, one being disposed on the external
16:06:58 surface or side of the dialectric body? Would you agree
16:07:02 with that?
16:07:02 A. That is one of the claims, yes, I would agree
16:07:05 with that.
16:07:06 Q. And then another function would be to be at
16:07:15 least in electrical contact with an internal plate, such as
16:07:18 depicted in the Figure 10A or the front Figure 11, 11 prime
16:07:25 or 10, 10 prime?
16:07:26 MR. SCHATZ: Objection.
16:07:27 Q. BY MR. SLONIM: Is that a fair
16:07:27 characterization of what a contact is supposed to do?
16:07:30 MR. SCHATZ: Objection, vague.
16:07:31 Are you asking for what his proposed
16:07:33 definition is, or just some function in the patents?
16:07:39 Q. BY MR. SLONIM: Do you understand my question?
16:07:41 A. It sounds to me that if I -- do I agree with
16:07:49 the claim construction the way it's written. That's how I
16:07:52 hear the question, because what you just said is, in
16:07:54 essence, what the claim says, and that is --

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16:07:59 Q. So you agree with it?
16:08:02 MR. SCHATZ: Objection, mischaracterization.
Q. BY MR. SLONIM: Is the answer --
16:08:04 THE WITNESS: I haven't agreed yet. I'm just
16:08:06 trying to understand the question first, and I want to
16:08:10 find -- ah, here we go. I think, please, help me here.
16:08:13 Are you referring to a conductive first
16:08:15 contact disposed externally on the dialectric body and
16:08:19 electrically connected to the first plate. That's what it
16:08:23 sounded like to me you asked.
16:08:24 Q. Correct.
16:08:25 A. Okay. And I do agree with that statement.
16:08:29 Q. That one of the functions of the contact is to
16:08:34 be electrically connected to the plate inside the
16:08:38 dialectric body?
16:08:40 A. Yes, because the first plate is defined as
16:08:54 inside the body in the patent.
16:08:56 Q. So the answer's yes?
16:09:01 A. Yes.
16:09:01 Q. And do you also understand that the function
16:09:04 of a contact as claimed in Claim 1 is also a piece that
16:09:12 could be attached to an external conductor?
16:09:16 A. That's one of its functions.
16:09:31 Q. So only the pieces that are attached to an
16:09:38 external conductor would be called a contact; is that

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16:09:44 right?
16:09:45 A. The pieces that are attached to an external
16:09:57 conductor are called a contact. Okay. Well, I wouldn't
16:10:03 call the plates contact. Is that what you're implying,
16:10:08 that the plate could be called a contact?
16:10:10 Q. I'm trying to understand what the contact
16:10:14 means to you as an expert in the context of Claim 1? And I
16:10:21 think we have --
16:10:23 A. Okay. Yeah, I would say the conductive
16:10:29 material exposed on the external surfaces of the capacitor,
16:10:37 that would be the contact.
16:10:37 Q. And so under that understanding that the
16:10:46 contact as disposed externally on the dialectric body,
16:10:54 having at least an electrical connection with the internal
16:10:59 plate, and also being the piece that is attached or
16:11:06 soldered to an external conductor, only such an element
16:11:15 could be called a contact within the Claim 1 of the '356
16:11:21 patent; is that right?
16:11:22 MR. SCHATZ: Objection, it's a
16:11:24 mischaracterization of what Dr. Godshalk just testified to.
16:11:32 Q. BY MR. SLONIM: You may answer.
16:11:33 A. So you're asking me to restate what I believe
16:11:49 the contact is? I just want to --
16:11:52 Q. I'm trying to understand what exactly the
16:11:57 contact is, and my understanding from the '356 patent is

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16:12:05 that the contact serves three functions, or has three
16:12:10 characteristics.
16:12:10 A. And what are those three?
16:12:12 Q. I think one, I think you've agreed with, it's
16:12:16 the being disposed on the dialectric body externally on a
16:12:24 surface, on an external surface of a dialectric body.
16:12:31 A. Okay. What was the next one?
16:12:34 Q. Can we agree on a shorthand for that?
16:12:36 A. I don't know shorthand, so -- all right.
16:12:37 Q. So the second one would be that at least being
16:12:46 an electrical connection, having an electrical connection
16:12:50 to an internal plate of the dialectric body, that's
16:12:54 disposed within the dialectric body?
16:12:56 A. Okay. Electrical connection to an interior
16:12:59 plate; is that what you said?
16:13:00 Q. Interior conductor plate.
16:13:02 A. Interior conductor. Okay. What's the next
16:13:05 one?
16:13:05 Q. And the third one is being the piece or the
16:13:11 part that is attachable to an external conductor such as a
16:13:21 printed circuit board as an example.
16:13:26 A. Mm-hm (affirmative response). Okay. So you
16:13:30 want to know do I agree with that definition, those three,
16:13:34 that that defines the conductor, or those three functions,
16:13:37 those are three functions of a conductor?

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Q. Of the contact?
A. Sorry, contact. Okay.
Q. Right. Now that you've written them down, I think we don't have a --
A. Understood.
MR. SCHATZ: I'm going to object to the extent if you're trying to characterize Dr. Godshalk's earlier testimony, because that is not consistent with what he testified to, nor is it consistent with his summary of his opinions.
THE WITNESS: Yeah. And what I'm going to do is look at what I wrote here in my claim construction first.
Q. BY MR. SLONIM: Before you do that, before refreshing yourself --
A. Okay.
Q. -- would you be able to answer my question now, whether a contact has to have those three functions or not, as an expert sitting here today, about the patent that you've read many times?
MR. SCHATZ: I'm going to object.
Dr. Godshalk has indicated he needs to refer to his report to answer that.
THE WITNESS: It will only take a second here.
Q. BY MR. SLONIM: Okay.

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A. I agree that -- let's see. Our contact is arranged on the external service of the capacitor. It is in electrical contact, makes an electrical connection, and then the interior conductor. It's funny, in our claims we don't talk about that it has to be attachable to a conductor on a printed circuit board.
Q. So what's your conclusion on the third requirement? Does it have to be there, or not, to define a contact in Claim 1 of the '356 patent?
A. If you treat it as a conductive structure, one portion of it would, you'd need to attach it to an external conductor to make it a useful device.
Q. So at least a portion of that contact has to be attachable, or intended to be attached?
A. Yes.
Q. And that's all I mean by attachable, to an external conductor?
A. I would agree with that.
Q. And when you say that a contact means a conductive material, is that what you're saying your claim construction --
A. Yes, conductive material.
Q. What does that mean?
A. Okay. It's not a dialectric.
Q. We've narrowed our choices.

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A. Yeah. It's not an insulator.
Q. What other characteristics would a conductive material have, in your opinion, as you've offered your construction?
A. Oh, in -- well, as I formed my construction, I didn't say anything else about it.
Q. Correct. And that's why I'm asking you questions.
A. Okay.
Q. And I would like to tell you that Mr. Schatz and Mr. Ahrens have represented to the Court that at a deposition you would be in a position to offer many, and I think the word was excruciating, level of detail about the summary of your opinions.
A. Okay.
Q. And that's the reason I'm following on the representation that these two people, these two lawyers, have made to the Court that you are now at this deposition in a position to fill in the gaps in your summary with detail, and that's why I'm asking --
A. Okay.
Q. -- to understand what you meant by a conductive material when you used that term in your construction of an element of Claim 1 of the '356 patent?
MR. SCHATZ: Objection. That's a

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mischaracterization of things that have been stated to the Court, and it's argumentative and it's improper, basically, to try to intimidate a witness in the way that you just did.
MR. SLONIM: And I would have to say to Mr. Schatz that we would present that piece of your statements on the record to the Court and ask the Court to make a judgment whether you have misrepresented to the Court about the state of knowledge and opinions that, and details that Dr. Godshalk shock would be able to provide at this deposition.
MR. SCHATZ: Feel free to do that.
MR. SLONIM: We absolutely will.
THE WITNESS: So, your --
Q. BY MR. SLONIM: Do you remember the question, aside from the colloquy?
A. Sorry, could you please rephrase it?
Q. No problem.
What do you mean by a conductive material when you said a contact that we now understand has to have the three functions?
A. There's actually other -- there's more than three functions. These are three of its functions.
Q. At least those three functions. Is that a fair --

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A. Well, I would like to, for the record, I'd like to state there are three -- these are three functions, but there are more functions implied in my claim construction.
Q. What are those additional functions?
A. One is that this conductive material can be used to form the fringe-effect capacitor.
Q. If I chose gold to serve as contact, would you say that gold would form the fringe-effect capacitance?
A. If it was thick enough it should be able to.
Q. How thick is thick enough?
A. In general, it will always form fringe capacitance, but to form it as defined in our claim construction, to make it able to affect the high frequency performance, it would need to be thick enough to make an appreciable amount of fringe capacitance; if it's too thin, then it falls into the general category, and it doesn't affect the high frequency performance.
Q. And what's the appreciable amount, as you've just characterized it, of the high frequency?
A. It has to do with the ratio of the gap with, to the thickness of the metal. If you have very thin metal, you'd have to bring it very close together, essentially, it's maintained in the constant ratio of height to gap.

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Q. And what is that ratio supposed to be in order to have an appreciable effect on high frequency performance? Is it one, two, three, five?
What's the value of that ratio?
A. Hm, that is variable. That is how you set the value of the capacitance, is that ratio.
Q. And so what is the ratio?
A. Depends on where you want the fringe capacitance to become effective.
Q. So let's say for a capacitor of the 0603 casing, what is that ratio?
MR. SCHATZ: Objection, calls for speculation.
THE WITNESS: I would need to know the capacitance value, the low frequency capacitance value.
Q. BY MR. SLONIM: A hundred nanofarads?
A. I would have to do some calculations for you that I don't think I have time to do here today.
Q. How long would it take you to do those calculations?
A. I don't know. A day.
Q. And by day, you mean eight-hour working day?
A. Yeah. Get you some good numbers there.
Q. I see. And what would be the equations or other numerical parameters that you would be calculating?
MR. SCHATZ: Objection. Objection.

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Q. BY MR. SLONIM: What are the steps of your calculations? Could you describe them?
A. Well, I'd have to work with the Devoes and get all their dimensions and understand the other interior capacitors, because they all work together.
Q. And so if I told you that the Devoes are not available, would you be able to do those calculations --
MR. SCHATZ: Objection, calls for speculation.
Q. BY MR. SLONIM: -- if you cannot talk to the Devoes for one reason or another?
MR. SCHATZ: Objection, calls for speculation and beyond the scope of Dr. Godshalk's opinions on the claim construction.
THE WITNESS: It would be within my ability to do a representative calculation.
Q. BY MR. SLONIM: And by a representative calculation, what do you mean?
A. It may not be exactly the same as any capacitor they make, but you could show principle of operation of the '356 capacitor.
Q. What I'm trying to understand is if I were to select gold, for example, as a potential material for a contact, in your claim construction of the term contact, would it meet the four functions that you, we have, that you have described?

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A. Gold is one candidate. I'm sorry, I talked over you.
Gold would be a viable conductive material.
Q. And what in the name of gold or properties of gold that you know tells you that gold would be available to have the fringe-effect capacitance that affects high frequency performance that you said is a requirement for the contact?
A. It has very little to do with it being gold, actually. Gold can work.
Q. So when you're selecting a material to be a contact, would it be a fair statement to say that the effect on high frequency performance does not matter when you're selecting a particular material? Is that a fair characterization, in the selection process?
A. There's competing restraints, of course, you need to make something that is manufacturable and attachable to a circuit board. I mean, low resistance metals is always desirable, and gold has a low resistance. There's obviously constraints that may not allow you to use gold, though.
Q. What are those constraints?
A. Cost, cost prohibitive.
Q. Any other constraints?
A. Maybe it doesn't -- I'm not a ceramic

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capacitor designer, so I will speculate if I say something, so, for the record, you know, my understanding, I'm not an expert on the sintering process and the attachment of the metals to the sides, so I can't give you a safe answer gold would attach to the interior plates. There might be issues there, and that is beyond my expertise, I'm not a metallurgist, so, that's the limit of my -- because we're getting into construction aspects of it, and that I am not a expert in, metallurgy and chemistry.

Q. And so is it fair to say that when you're selecting a material, say from a low resistance material that you said, you don't need to consider that fourth limitation about high -- forming a fringe-effect affecting high frequency performance; is that a fair import of your statements?

A. That may not be exactly correct.

Q. Could you correct me, what I said, that is wrong?

A. Low resistance -- what I'm trying to say is that low resistance is very desirable for the fringe capacitor, making electrical connection to the interior plates, you could contrast the high resistance, it never helps you.

Q. What are the examples of a higher resistance metals?

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A. That's outside my area of expertise because I always trying to use low resistance metal. I haven't actively sought out bad resistance metals, so -- you could look in the CRC Handbook. I imagine lead, something like that.

Q. And in terms of let's say determining whether a particular material is low resistance or high resistance metal, how would you do that? What's the test?

What's the numerical bound that puts one into one bin and another into another?

A. Well, for printed circuit boards, where I use them more, or semiconductors, this does not necessarily apply to capacitors because I don't build them.

Q. Okay.

A. We look for insertion loss, over the whole frequency band, the insertion loss increases as the resistance increases. That's one way of characterizing the loss.

Q. And could you put numerical bands or values on those insertion losses and the resistances?

A. Yeah. What you need to do is run a simulation, it depends on the metal thickness and the frequency you're at, skin depth, how deep the waves penetrate into the metal, so it's two competing factors, the thickness of the metal and the resistance, believe it

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or not. They both are important. And frequency, so there's three things you need to know, and surface roughness is another one that comes into play at these high frequencies, so it's just four ingredients at least I've listed there, possibly more.

The real high frequencies, if the lines get too narrow, you actually have radiation problems, too, so, that's a fifth one.

MR. SCHATZ: Timur, would now be a decent time for a break?

MR. SLONIM: Yes.

MR. SCHATZ: Okay, thank you.

(A recess was taken from 4:32 p.m. to 4:44 p.m.)

Q. BY MR. SLONIM: Dr. Godshalk, could you read into the record what you wrote in addition to the three elements, if you had made any notation?

A. Yeah, I did. I wrote down the fourth one that you and I had agreed on verbally, that a contact creates fringe capacitance in the '356 patent.

Q. And so is it a fair characterization at the end of our discussion before the break that, about low resistance versus high resistance material, that you don't have a particular numerical quantification for what a low resistance materials are?

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A. Well, low resistance in -- let's see, what's the conductivity of gold, or copper? They're around 4.7 times -- let me get it right now. I might have to do the calculation.

Q. Go ahead. If that's a quick one, no problem.

A. And I may be misremembering, if it's reciprocal or not, sorry, I'm feeling under a little pressure here.

Q. Well, let's probably do that calculation at a different time if we need to.

A. Okay.

Q. Could you give me other examples of low resistance materials --

A. Oh --

Q. -- that you know of?

A. Yeah. Copper, gold, silver.

Q. Anything else?

A. Um, those are the three that jump out at me right away, the ones that I'm most familiar with.

Q. Would you consider tin to be a low resistance material?

A. It's moderate. It's not as good as the other three. You can use, as I mentioned, my examples were for long interconnects, transmission lines. The resistance is less of an issue for small devices, because it's a loss per

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unit length type problem.
Q. Okay.
A. So you could use a higher loss material on these capacitors and not necessarily take a huge hit for it.
Q. I see. Would you consider nickel to be a low resistance material?
A. It's not as good as gold or copper.
MR. SCHATZ: Objection to the extent, if you're able to make this assessment here, okay, but if --
THE WITNESS: It wouldn't be a choice of mine to use, so, I don't know. I don't know.
Q. BY MR. SLONIM: And would it be fair to say that when you've construed a contact to mean a conductive material for a useful device, for a multi-layer capacitor, you've intended that to cover the low resistance materials? Is that a fair import?
A. No. I didn't mean to imply that it had to be that.
Q. So your construction would cover materials other than low resistance materials for contact?
A. Yes. You could have what I would call moderate resistance materials, just because the distances are so short.
Q. And is the conductive material -- is

conductive material a substance of a uniform composition when you use the conductive material in your construction?
A. I didn't address that at all.
Q. If you would address that question here with me today, what's your expert opinion whether --
A. Is it consistent or not, you asked?
Q. No. I'm asking whether a conductive material as used in your claim construction, whether that means a substance of uniform composition?
MR. SCHATZ: Objection to the extent it goes beyond Dr. Godshalk's offered opinions.
THE WITNESS: I would use it as it's written in the '356 patent because they do have a paragraph describing the --
Q. BY MR. SLONIM: Could you show me the paragraph you --
A. Sure.
Q. If I may redirect your attention, I think we may be talking about the same paragraph.
A. Mm-hm (affirmative response). Please.
Q. I'm talking about paragraph, Column 12, Line 39.
A. Line 39. It's not the one I was thinking of. Let's see. There's one that gives -- what I was thinking about was where they talk about the construction of a

multi-layer ceramic capacitor, the bottom of Column 1, I think it's Line 63, it starts there, and he talks about the -- and then continues on to the top of Column 2 where they talk about the sheets and the binder. Let's see.
"The device is then dipped in conductive material to form end terminations for the internal conductive structure, suitable for soldering to a surface mount circuit board or gluing and wire bonding to a hybrid circuit," so apparently he doesn't call out the consistency of the material, which is what you asked about, I think.
Q. But otherwise, this passage that you just read, the dipping, the device being dipped into conductive material, is that -- you understand how that, the contact would be formed?
A. I do.
Q. And does that passage suggest to you that it's -- how many times would it be dipped in conductive material? Does it suggest one time is enough?
A. Doesn't say.
Q. Would one time dipping create a conductive material?
A. I would certainly think at least a minimum of one is required to get a coating on there.
Q. And in your construction do you require any particular number of dippings?

A. No. It's not appropriate to the claim construction at all, if it's in question.
Q. Why not?
A. Well, let's look at it, the claim that's in dispute.
Q. I think we're talking about Claim 1?
A. Yes.
Q. It's at the bottom of Column 12.
A. Okay. Yes. Is it the last passage of 12?
A conductive first contact disposed externally on the dialectric body and electrically connected to the first plate, so I don't see anything about dipping in there, just has to be sufficient to be connected to the first plate.
Q. And is it your understanding that the way you dispose a contact or a conductive material on the dialectric body is one way of doing that, that's taught in the patent, is by dipping?
A. That is what the patent says, yes.
Q. But is your construction limited to dipping?
A. No, it doesn't deal with dipping at all; it doesn't call it out at all.
Q. So, any way you can dispose conductive material on a dialectric body, satisfying over three and four requirements that we've talked about, would be a

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16:52:47 contact?
16:52:47 A. What we're talking about is any way of disposing the metal, you said, not necessarily dipping.
16:52:54 Q. Right.
16:52:56 Is there any way -- to ask it another way, do you exclude any other ways known to you?
16:53:04 A. I have not excluded any other ways known to me.
16:53:08 Q. And if we were to look at Column 12, Line 40, that begins with, "Indeed, different layers in the ceramic structure may be made of ceramic materials having different molecular structures," do you see that passage?
16:53:42 A. I see it.
16:53:43 Q. Does it imply to you that different materials have different molecular structures?
16:53:53 A. I haven't considered that at all. I don't have an opinion on that.
16:53:57 Q. So sitting here today you won't be able to say whether gold has a different molecular structure from tin, for example?
16:54:13 A. Oh, well, they're definitely different atoms. Their crystalline arrangement, I can't remember if they're the same or different. Different atoms.
16:54:31 Q. So in your opinion, in your expert opinion, would they have the same molecular structure at all, tin

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16:54:41 and gold, for example, any two materials?
16:54:45 A. I don't have an answer for you. I haven't considered that at all on -- as claim construction.
16:55:16 MR. SCHATZ: I'll caution the witness not to speculate.
16:55:19 Q. BY MR. SLONIM: Okay. I understand.
16:55:23 A. Metal can be in different forms, so --
16:55:26 Q. And does material, the conductive material, the way you've construed contact, require that to be a single conductive material?
16:55:35 A. No such requirement has been made.
16:55:38 Q. So conductive material in your construction means more than one material?
16:55:43 A. It doesn't mean that either. There is no -- I made no stipulation if it's one or more.
16:55:50 Q. I see. Do you expect to make that stipulation at some point?
16:55:56 A. At present I have no plans to.
16:56:00 Q. If we could, we'll look at Figure 19 in the '356 patent, and here I wanted to, for you to tell me what other fringe-effect capacitances in the, depicted in this figure that are present in the capacitor, Figure 19A?
16:56:46 A. I see the two, I believe. I'd like to just verify that.
16:56:52 Q. Absolutely.

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16:57:08 A. Yes, okay. It's -- it ends the conductive material shown as 108 and 109 as the fringe capacitance, between there, which is called 110, in Figure 19B.
16:58:47 Q. Okay.
16:58:47 A. And similarly, between the ends marked 117 and 118 is capacitor 119 in Figure 19B.
16:58:56 Q. Any other fringe-effect capacitances in this figure?
16:59:03 A. With respect to the definition used in the '356 patent that affect high frequency performance, I don't think so. Let's verify that. I think that's it.
16:59:25 Q. And to verify that, do you need to read --
16:59:28 A. Well --
16:59:28 Q. Is that what you're doing?
16:59:29 A. I'm just checking. I'm just double-checking.
16:59:32 Q. I just want to accurately characterize what you're doing, what you mean by verify, verifying, you mean to read the corresponding description for Figure 19A?
16:59:41 A. Yes, yes, that's what I'm doing.
16:59:43 Q. Okay.
16:59:43 A. Because without dimensions, you can't always tell what's intended.
16:59:54 Q. Okay.
17:00:24 A. I believe those to be the two fringing capacitances.

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17:00:28 Q. So is it your opinion that there is no fringe-effect capacitance between 112 and 113, plates 112 and 113? They're on the left -- on the right side. I'm sorry.
17:00:39 A. 112 and 113. In a general sense, there will be fringing capacitance, but in light of the '356 claim, it's not fringing capacitance that is usable to affect the high frequency performance.
17:00:54 Q. But if we were to go on the literal language of the claim, Claim 1, without that embellishment about high frequency performance that you've introduced into your construction, that capacitance would be called fringe-effect capacitance, wouldn't it?
17:01:15 A. Well, I don't think I've introduced it.
17:01:19 Q. I don't see high frequency performance language in the -- anywhere in Claim 1. Could you read me where those words appear?
17:01:41 A. That is correct, I'm thinking of my definition of Claim 1, where I've introduced it.
17:01:53 Q. So putting your definition aside, just going on the general definition of what high frequency capacitance is, you would expect from the principles of physics to have fringe-effect capacitance between 112 and 113?
17:02:15 A. In a general sense there would be some fringe

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capacitance, but --
Q. I understand. Sorry to interrupt.
And then by the same token, you would expect fringe-effect capacitance to exist between 101 and 102?
A. In a general sense. Not that affects high frequency performance.
Q. How do you know that it does not affect high frequency performance of a capacitor of Figure 19A?
A. Based on the equivalent circuit diagram, they do not show a contribution of fringing capacitance in that diagram. Since I don't have the dimensions, I have to assume they're being honest in their diagram, and that they found that to be insignificant in regards to building this capacitance array.
Q. Do they describe in the corresponding description for Figure 19A how they distinguish between high frequency effect between, on one hand, between 101 and 102, and on the other hand between 109 and 108?
A. When they talk about 101 and 102, they talk about the interaction of those plates with -- let me verify before I say it. I know what I want to say, but I want to be careful. Yeah, 101 and 102 are disposed. Yeah, the plates 101 and 102 give rise to the capacitors 105, 106 and 107, has to do with interaction with the floating electrode, 104, and then it would be interaction with plate

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104 would be capacitor 106 and 107, and then there's a capacitor 105, which is due to the interaction between plate 101 and the -- it's unlabeled, this plate coming out from the bottom here. So they do not note any fringe capacitance for that network of plates.
Q. And so by the absence of that description, that's enough for you to say that there is no fringe-effect capacitance between plates 101 and 102?
A. There is none using the definition that it has to affect high frequency performance.
Q. And what gives you that confidence to say that it does not have it? I don't, as far as I understood what you've just read from the description in Figure 19A, it doesn't say one way or another, does not mention whether it is -- it has or it hasn't any effect on high frequency performance. I didn't see anything that you've read that says it does not.
A. Well, they distinctly call out -- let's see, you have the respective ends, 108 and 109, sufficiently close to each other so as to form a fringe-effect capacitance 110, there between, as shown in Figure 19B, and then they have analogous sentence below.
Q. So what's the answer to my question?
A. In terms of affecting the high frequency performance, the only relevant fringing capacitance are

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sown by capacitors 110 and 119. That is my conclusion and opinion.
Q. But the patent does not describe one way or another whether the fringe-effect between 101 and 102, has or doesn't have any high frequent -- effect on high frequency performance, does it?
MR. SCHATZ: Objection, asked and answered.
Q. BY MR. SLONIM: You may answer.
A. Yeah, in my opinion, as I've already answered, it's not relevant to affecting the high frequency performance, so they don't show it in the high -- in the equivalent circuit diagram. That's my opinion.
Q. Did they say it was not relevant, that they determined that it does not have high frequency --
A. They make no such statement either way, but other parts of the '356 patent, whenever they talk about generating this fringe capacitance, it's always in the context of affecting the high frequency performance.
Q. And so you're saying that the fringe-effect capacitance 110 affects high frequency performance of the capacitor as a whole?
A. Yes.
Q. And what is that effect of the high frequency performance of the fringe-effect capacitance 110?
MR. SCHATZ: Objection, vague.

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THE WITNESS: Could you clarify that, please?
Q. BY MR. SLONIM: You've said that the fringe-effect capacitance 110 has an effect on high frequency performance of the capacitor Figure 19A as a whole; is that right?
A. Mm-hm (affirmative response). That is right.
Q. And I'm trying to understand what that effect is in numbers or substance, comparatively or in any way that you can quantify what that effect is.
A. Being a small value capacitor helps to reduce insertion loss of high frequencies, which I think I've said that earlier --
Q. So, I don't understand --
A. -- today.
Q. So I don't understand how that answers my question, which was, so what is that effect?
A. Reduction in insertion loss at the highest frequencies.
Q. What's the highest frequency that it is reducing the insertion loss? What's the number for that highest frequency?
A. All dependent on the values of these capacitors.
Q. So sitting here today you don't have that value?

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17:09:38 A. Without having these values, I can't do that calculation. I would have to have these values.
17:09:42 Q. And these values were not provided in this patent?
17:09:45 A. Correct.
17:09:46 Q. So without those values you cannot confirm that there is effect on high frequency performance from fringe-effect capacitors 110; isn't that right?
17:09:55 MR. SCHATZ: Objection, mischaracterization.
17:09:59 THE WITNESS: Based on the network that is presented here and the statements of low, of high value capacitors, medium value capacitors, and the lowest ones, the fringe capacitor ones, it makes, I believe, what the Devoes say.
17:10:17 Q. But you cannot verify that, there is no data in the patent to verify that that capacitance, fringe-effect capacitance 110 has any effect on high frequency performance; is that correct?
17:10:37 A. All I can say is I have not seen data for this capacitor.
17:10:42 Q. And so based on that absence of data, can you conclude from that absence of data whether there is or there isn't any effect on high frequency performance from fringe-effect capacitor 110?
17:11:04 A. All of the arguments or descriptions in the

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17:11:06 summary of the '356 patent are logical that would lead -- lead me to believe the capacitor 110 will affect the high frequency performance.
17:11:22 Q. And would the fringe affect capacitance 119 on the opposed end of Figure 19A also have an effect on high frequency performance?
17:11:33 A. Yes.
17:11:33 Q. And what is that effect?
17:11:34 A. Similar to capacitor 110.
17:11:40 Q. Are they equal in size?
17:11:43 A. There's not enough data in this drawing, there's no dimensions on the gaps or the heights.
17:11:50 Q. How would you be able to distinguish, let's say from insertion loss data or an asperometer data how one, the effect on high frequency performance of fringe-effect 110 on one hand, and fringe-effect 119 on another?
17:12:12 A. Hm, the response, there you have -- it's not easily knowable, because you have more variables then you have equations. Remember in algebra you have to have the same number of equations as the unknowns? So they play together, so it's difficult to separate the two from measurement.
17:12:43 Q. So is it your testimony here today that in your expert opinion one would not be able to separate the

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17:12:53 two effects on high frequency performance between two -- between two fringe-effect capacitances, 110 and 119?
17:13:02 A. Based only on measurement, it would be difficult to do. I don't --
17:13:14 Q. By difficult, what do you mean?
17:13:15 What steps would you take in order to separate or differentiate them?
17:13:23 A. I think you would need a collection of these capacitors, and you'd vary one gap while holding another constant, and take the measurements; then you could ascertain the relative contribution of both.
17:13:38 Q. Could you describe that in any more detail, so, what's the first step, and what equipment you're using to do that?
17:13:47 A. We use an 8510 network analyzer, or there's other similar instruments; and would ask ATC to make me a collection of capacitors with known gap dimensions.
17:14:02 Q. By collection of capacitors --
17:14:04 A. Like a set of -- how many? A dozen, that kind of number.
17:14:12 Q. And all the capacitors in that dozen would be all different capacitors?
17:14:19 A. They would have to be all identical except for the gaps.
17:14:24 Q. And by all identical, you mean they would have

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17:14:26 to have exactly the same internal dialectric body made of the same dialectric material and have the exact same conductive plates disposed within that; is that what --
17:14:39 A. Yeah, with the exception of the gap region.
17:14:41 Q. And the gap region, you're referring to the gap between 108 and 109 --
17:14:48 A. Mm-hm (affirmative response).
17:14:48 Q. -- and 117 and 118?
17:14:51 A. Mm-hm (affirmative response).
17:14:51 Q. And so then what gap region would you want them to give you as a starting point for your measurements to isolate these effects on high frequency performance?
17:15:11 A. Like a table of values?
17:15:15 Q. Yes. Any meaning that you can give me, because now I'm pretty much at sea in terms of understanding width.
17:15:25 A. I would have them vary the gap width by a factor of, do it in 20 percent, 50 percent increments, that kind of number.
17:15:36 Q. And let's say you start with, let's say a gap of five mils, and you measure gap between 108 and 109, five mils, and gap 117 and 118, 5 mils, and you measure the insertion loss --
17:15:57 A. Mm-hm (affirmative response).
17:15:58 Q. -- what does that tell you about the

contribution of 110 or 119 to the high frequency performance of the capacitor as a whole?
A. Well, based on --
MR. SCHATZ: Objection, calls for speculation.
THE WITNESS: Yeah, one measurement itself doesn't tell you anything between the two.
Q. BY MR. SLONIM: So such a measurement with both gaps at five mils would provide a baseline for you?
A. I don't know if that would be my baseline, but it would be a data point.
Q. And let's say we change the gap between 108 and 109 to a smaller gap, let's say two mils and held the gap of 117 and 118 at five, and measure the S parameter via the insertion loss.
A. Hm-mm (negative response).
Q. How would those two data points that you now have tell you what the relevant contributions of 110 and 119 are to the high frequency performance of the capacitor as a whole?
MR. SCHATZ: Objection, calls for speculation.
THE WITNESS: Yeah, that alone would not tell me, and you'd also have to do some simulations on a 3D simulator, knowing the dimensions of the capacitor.
Actually, with a good simulator, you could probably not do the measurements.

Q. BY MR. SLONIM: And what simulations would you need to perform? Could you describe them?
A. Yeah, use probably Ansoft Q3D, and I would vary the dimensions, just as I described, to two different gaps, and you can watch how the overall capacitor changes to the structure.
Q. And does the patent itself provide any method or way of determining how to determine the separate effects of 110 and 119, the fringe effects, on high frequency?
A. No, it does not discuss how to separate them.
Q. Is it your opinion that one of ordinary skill in the art would know how to do that?
A. With a good simulator, yes, I believe they could.
Q. Is there a particular --
A. That's my opinion.
Q. Is there a particular reference? Have you seen such data in publication about multi-layer capacitors where somebody has isolated those effects and told the world about some of what those effects are?
A. No, I have not seen that in publication.
Q. So what makes you think that one would be able to do that if nobody has done that to date?
A. I didn't say nobody's done it to date; I just haven't seen it in publication.

Q. If it hasn't come across to you as one of, I presume, a higher level of skill than ordinary, if up to this point you have not seen even a single such result presented anywhere in technical literature that you've referred to, what makes you think that one would be able to do that?
A. There are some references that show hand calculations to calculate fringe capacitances. They're in your references that you gave us. And if a person can do it by hand, it can certainly be done by a modern simulator.
Q. And what calculations, are you referring to calculations of fringe-effect capacitors?
A. Correct.
Q. But I was talking about the effect of the fringe-effect on high frequency performance, which I believe is what you were talking about, so, do you know any publication that describes and keeps data separately for two or more different fringe effects in a multi-layer capacitor and their separate effects or how to isolate their numerical values for them, as they affect high frequency performance?
A. I have seen no such article in publication.
Q. And so, just repeating my question, having not seen that article in, what, about 20 years that you've been in this field, what makes you believe that one would be

able to do that?
A. Because it's a pretty simple problem to run on one of these modern simulators.
Q. How long do you think this would take a modern simulator to do that?
A. Under a day.
Q. Under a day?
A. (Nodding head.)
Q. Is that a single computer work station, kind of a desktop computer?
A. Yeah, modern, a reasonably high performance work station or PC.
Q. By modern what are you referring to, in the last couple years?
A. 64 bit would be nice. Not essential, but it speeds it up.
Q. And so modern is any computer that runs on 64 bits; is that --
A. Yeah, 64 bit, three megahertz clock speed or better.
Q. Could you please draw for me a monolithic dialectric body? And before you do that, I think if we can label this page as Exhibit 6, I believe.
(Deposition Exhibit No. 6 was marked for identification.)

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17:23:14 THE WITNESS: Are you ready?
17:23:16 Q. BY MR. SLONIM: Yes.
17:23:17 A. Draw a monolithic dialectric body.
17:23:21 Q. As it is used in your claim construction.
17:23:26 A. It's supposed to be a rectangular box, but it
17:23:40 doesn't have to be rectangular.
17:23:43 (Witness complies.)
17:23:52 Q. Could you label that as Figure 1 or A, and
17:23:57 tell me that it's a monolithic dialectric body.
17:24:01 A. Okay. I used 1, 2, 3 and A, B, C. How about
17:24:08 Alpha?
17:24:08 Q. Works for me.
17:24:09 A. So, monolithic body is what you --
17:24:13 Q. Monolithic dialectric body.
17:24:19 A. Okay.
17:24:19 Q. And below that, could you draw me a
17:24:24 substantially monolithic dialectric body?
17:24:30 A. Okay. (Witness complies.)
17:25:02 Q. Could you label that drawing as a figure Beta,
17:25:05 I guess?
17:25:06 A. Mm-hm (affirmative response). (Witness
17:25:07 complies.)
17:25:08 Q. So what is the difference between a monolithic
17:25:33 dialectric body as you've drawn in Figure Alpha, and the
17:25:38 substantially monolithic dialectric body drawn in Figure

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17:25:42 Beta?
17:25:43 A. They're both, if held in a pair of tweezers, a
17:25:55 surface mount capacitor, they both look to the naked eye as
17:26:00 a single piece device.
17:26:02 Q. So that's the similarity?
17:26:03 A. That's the similarity.
17:26:05 Q. What is the difference?
17:26:06 A. Well, the substantially one I've drawn is --
17:26:09 you'll have your conductor material on each end, you could
17:26:13 have, you could bring them in very close to put a gap here,
17:26:18 so there's imperfections in the surface versus -- well,
17:26:23 there's supposed to be no imperfections in that one
17:26:28 (indicating).
17:26:29 Q. Am I correct to understand in Figure Beta, the
17:26:33 one that you say is the substantially monolithic dialectric
17:26:39 body, you've put some contacts on top of the dialectric
17:26:43 body?
17:26:43 A. Yes.
17:26:45 Q. Is that what you did?
17:26:45 A. That's what I've done there.
17:26:47 Q. But could you redraw that figure, because I
17:26:52 didn't ask it to be with contacts, because I think, and let
17:26:58 me just confirm, in Figure Alpha, Alpha, you've drawn a
17:27:02 monolithic dialectric body without contacts disposed on
17:27:09 that; is that right?

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17:27:09 A. Correct. It's just a bare body.
17:27:13 Q. So, sticking with the bare dialectric body,
17:27:17 without contacts, could you please draw me a substantially
17:27:22 monolithic dialectric body?
17:27:26 A. Okay, without contacts, you said?
17:27:29 Q. Correct. Correct. So I could make an
17:27:31 apples-to-apples comparison, when you Figure Alpha and that
17:27:38 other drawing that you would give me.
17:27:39 A. Okay. Let me just ponder this a second here.
17:28:07 Well, this is what I meant by substantially
17:28:08 monolithic, though, because it has -- monolithic is one
17:28:12 piece by definition, correct?
17:28:13 Q. Are you asking me?
17:28:15 A. Well, I'm making a statement. All right.
17:28:19 Q. I thought so.
17:28:20 A. All right.
17:28:20 Q. But I can answer that question.
17:28:22 A. I'm sure you can.
17:28:23 Substantially, from a distance, it looks like
17:28:26 one piece. In this claim construction what we mean by
17:28:31 substantially monolithic is that, in reality, you could say
17:28:36 well, there's that conductive material, and there's the
17:28:38 actual dialectric. It's not all dialectric. A large
17:28:43 percentage of it's dialectric, so we say it's substantially
17:28:47 a monolithic dialectric body. The majority of the device

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17:28:54 is dialectric.
17:28:57 Q. What's the percentage of the device that it
17:29:01 has to have in order to be considered substantially
17:29:05 monolithic dialectric?
17:29:06 A. In the claim construction we say largely but
17:29:11 not necessarily wholly one piece dialectric body. We don't
17:29:16 give a percentage. I didn't give a percentage there.
17:29:18 Q. So, that's what I'm asking you here now, in
17:29:21 your expert opinion, what does your claim construction call
17:29:24 for, what is the percentage?
17:29:27 MR. SCHATZ: Objection, asked and answered.
17:29:33 Q. BY MR. SLONIM: You may answer.
17:29:34 A. I don't have a figure today. I'm not prepared
17:29:37 to give you an exact percentage.
17:29:38 Q. What would you need to do in order to form an
17:29:45 opinion on that exact percentage?
17:29:47 A. Look at the number of metal layers inside,
17:29:51 outside, and compare that with the total volume.
17:29:55 Q. And by the total number of layers, do you mean
17:30:07 the dialectric layers?
17:30:10 A. One way to do it would be to take all the
17:30:24 metal out of it and put it in one pile, and all the
17:30:27 dialectric that's left over, and you could compare the
17:30:30 percentages.
17:30:30 Q. By volume or --

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17:30:31 A. Volume or weight. Well, hm. They're different. Talking shape, so that would imply volume.
17:30:51 Q. You mean the shape of the metal contacts inside the dialectric body?
17:30:55 A. Yeah; how much the percent is of the volume is due to metal versus dialectric.
17:31:00 Q. So that would determine whether a capacitor at a particular threshold or a percentage is or is not substantially, has a substantial monolithic dialectric body; is that right?
17:31:20 A. I don't know if that could be a definitive definition; it's just a way of coming up with a percentage.
17:31:25 Q. So let's go back to the task that we started with.
17:31:35 A. Mm-hm (affirmative response).
17:31:35 Q. Could you draw me an equivalent figure for the Figure Alpha without contacts that would be a representation of substantially monolithic dialectric body.
17:31:56 And I would ask that you do that now.
17:31:58 MR. SCHATZ: Objection. Dr. Godshalk already drew what he believes to be a substantially monolithic body, and he described it as Figure Beta.
17:32:08 THE WITNESS: Yeah. I don't know what I would draw different than Beta. I mean, I thought this is what you want.

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17:32:14 Q. BY MR. SLONIM: What I want is to understand what your construction is.
17:32:19 A. Oh, my construction is represented in Beta.
17:32:24 Q. So what's the difference between monolithic and substantially monolithic body?
17:32:33 MR. SCHATZ: Objection, asked and answered.
17:32:35 THE WITNESS: Yeah, I did explain it before, the tweezer test, so --
17:32:39 Q. BY MR. SLONIM: Could you draw me a figure of an insubstantially monolithic dialectric body?
17:32:48 A. I haven't considered that.
17:32:53 Q. Would your construction that there is a characteristic of substantially also imply that there is other characteristics?
17:33:02 A. I've never seen the term. I've seen substantially monolithic body used in prior art patents. I've never seen the term insubstantial monolithic body. I don't feel prepared to draw that.
17:33:14 Q. So does your construction imply that the whole universe of these dialectric bodies is substantially monolithic dialectric body?
17:33:27 A. The whole universe.
17:33:30 Q. The multi-layer capacitors, all of them have substantially monolithic dialectric body.
17:33:38 MR. SCHATZ: Objection, calls for speculation.

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17:33:40 THE WITNESS: Yeah, I don't see that term used all the time in all the patents, so I don't think they all are substantially monolithic. I've never done a survey on it, so I don't know.
17:33:49 Q. BY MR. SLONIM: But does it mean, if there is an object called substantially monolithic, does that also imply that there is another object that may not be substantially monolithic?
17:34:02 A. I don't think one implies the other.
17:34:04 Q. Is there a degree of monolithicness? You've drawn a monolithic body.
17:34:12 A. Mm-hm (affirmative response).
17:34:12 Q. You've drawn what you believe is a substantially monolithic body.
17:34:16 A. Mm-hm (affirmative response).
17:34:16 Q. Is there a degree of monolithicness?
17:34:18 A. When I said substantial, I was just trying to distinguish it from being perfectly monolithic. There's a perfectly monolithic dialectric body, just a dialectric, right? That would be a pretty useless capacitor with no metal.
17:34:35 Q. Okay.
17:34:36 A. So that's my reasoning for saying substantially.
17:34:39 Q. So inserting the plates, the metal plates into

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17:34:44 the dialectric body, is that what creates the problem with monolithicness in your opinion?
17:34:52 MR. SCHATZ: Objection, vague.
17:34:53 Q. BY MR. SLONIM: You may answer.
17:34:54 A. The fact that it's not a hundred percent dialectric and we have to put contacts, conductor materials on it, reduces it to substantially monolithic.
17:35:06 Q. And could it be further reduced to a nonmonolithic or insubstantially monolithic by inclusion of more plates or in any other way, in your expert opinion?
17:35:30 MR. SCHATZ: Objection, vague, and a compound question.
17:35:33 Which question would you like him to answer?
17:35:37 Q. BY MR. SLONIM: You may answer. You may answer.
17:35:39 A. I don't know. I haven't considered that at all. I was trying to describe the '356 capacitor, not alternative capacitors. I was really trying to define this capacitor, the definition of that.
17:35:55 Q. Correct. What I'm trying to understand is what does that definition cover and how does that definition work?
17:36:01 A. Mm-hm (affirmative response).
17:36:02 Q. If I am given a capacitor, what would you do, a multilayer capacitor, ceramic capacitor, what would you

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do to determine, and you've never seen that capacitor before, you don't have a label, you don't know who the manufacturer is, somebody drops it on your -- how would you determine whether that capacitor is monolithic or substantially monolithic?

A. Got it.

Well, if it works as a capacitor, it's not purely monolithic, because there's some metal in there, so it pushes it out of the monolithic category into the substantially monolithic category.

Q. So is it your expert opinion that, under your construction of the term substantially monolithic, any capacitor that, as you said, works as a capacitor, would be substantially monolithic?

MR. SCHATZ: Object, it mischaracterizes the testimony.

THE WITNESS: Because we're talking about ceramic capacitors.

Q. BY MR. SLONIM: Multi-layer ceramic capacitors, that's all we're talking about here.

A. When I think of monolithic, what do we mean by non substantially monolithic, multiple bodies that are distinct from each other.

Q. Could you give me an example?

A. Yes, I can. Now we're connecting.

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Here we go. Figure 8A, a great example, this is not a substantially monolithic capacitor.

Q. Could you label the one or more different capacitors that are presented in Figure 8?

A. It appears to me there are two distinct capacitors that are bonded together.

Q. Could you draw circles around one, and then the next one so, and label the circles?

A. (Witness complies.)

Q. So Figure 8A presents an example of a non substantially monolithic capacitor; is that right?

A. Correct.

Q. So two capacitors, two multi-layer ceramic capacitors stacked up on each other as in Figure 8A, would not be, under your definition, a substantially monolithic capacitor; is that correct?

A. I would not call them substantially monolithic, if it is clear to an observer, that it's two separate components attached together. If they were so similar in shape and they were put together, and you couldn't tell anymore, then they would take a monolithic, a substantially monolithic shape. And the reason I pick 8A is that they're a very different cross-section. I can clearly tell there are two different capacitors there, in Figure 8B, for example.

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Q. And so let's say the top capacitor 8, in Figure 8A, which are labeled A, if those two capacitors of that type A are stacked upon one another, would you call that combination of two capacitors of this A --

A. Two identical ones?

Q. -- two identical ones to be stacked up on each other --

A. Oh, boy.

Q. -- as a monolithic capacitor?

MR. SCHATZ: Did you say it would be a monolithic capacitor or a similar?

THE WITNESS: It wouldn't be monolithic. Sorry.

MR. SCHATZ: I'm trying to clarify the question.

Were you asking whether or not that was a monolithic capacitor example or an example of a substantially monolithic?

Q. BY MR. SLONIM: Let's start with a monolithic.

A. I would say no, it is not monolithic.

Q. Would you say it is substantially monolithic?

A. That's so subjective. I can't answer that one.

Q. What's the subjectivity in that question?

A. Well, obvious, a connection is between the

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two.

Q. And by how obvious the connection between the two is, are you referring to, what, the amount of solder between them, or --

A. I have to think about this.

If you took the exact form as what I've drawn here, and you could not tell that it had been built out of two separate capacitors, it's speculation, though, what I'm doing here. It's so subjective. I don't think I can give you a definitive answer on it, though.

Q. Does the patent, as you've read it many times, provide that answer?

A. It does not --

MR. SCHATZ: Objection, goes beyond Dr. Godshalk's testimony and his opinions in Exhibit 3.

THE WITNESS: That's true, because I haven't --

Q. BY MR. SLONIM: You may answer.

A. I have not reviewed the patent from that point of view.

Q. But in your reviews that you have done to date of the patent, you have not encountered a test or definition or anything that would help one differentiate between monolithic multi-layer capacitors and substantially monolithic, where that boundary is or what one -- what are

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the defining characteristics of one that are not present in another?

MR. SCHATZ: Objection, vague and compound. Multiple --

Q. BY MR. SLONIM: You may answer.

A. All I can do is stand by my answer that, to me, monolithic, perfectly monolithic means just a dialectric, so, I don't -- substantially monolithic allows it to have conductive material on the exterior; that was the intent when I wrote this claim construction.

Q. I see. So a definition that references the metal plates or the amount of metal within the dialectric body, in one form or another, you would assume that that definition is a more appropriate definition of a substantially monolithic dialectric body?

MR. SCHATZ: Objection, mischaracterization of the testimony.

THE WITNESS: I'm sorry, I didn't follow you on that one.

Q. BY MR. SLONIM: So from this discussion that the plates, the metal plates, the conductive plates being inserted in between the layers of dialectric, I guess break the monolithicness?

A. I didn't consider interior plates at all. The claim, what it was targeting, was the external aspects of

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the capacitor.

Q. So you're saying the substantially monolithic dialectric body that claim element refers to external elements of the capacitor?

MR. SCHATZ: Object.

Q. BY MR. SLONIM: I'm not sure I understand what you meant.

MR. SCHATZ: Objection, asked and answered.

Q. BY MR. SLONIM: If you can clarify your answer.

A. Well, I tried to show it in the drawing here, when I said substantially monolithic, I was trying to show these external conductive materials.

Q. And you're pointing to Figure B?

A. Yes.

Q. So you're saying the contacts, metal contacts on top of --

A. Arranged on the exterior of the capacitor.

Q. Arranged or exposed on the exterior of the capacitor?

A. Yeah. That is what I was focused on.

Q. So that addition of those contacts takes the capacitor, takes the, that device, the capacitor, out of the monolithic dialectric body into the category that you've construed as substantially monolithic dialectric

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body? Is that fair?

A. Let me ponder that over a minute.

Q. Absolutely.

A. Could you please repeat your question?

Q. Sure.

So does the addition of metal contacts on top of the dialectric body take that dialectric body out of the category called monolithic dialectric body and into a category called substantially monolithic dialectric body? Is that what your construction --

A. I did not -- okay.

My construction is that I felt substantially was a more accurate way of describing this capacitor.

Q. And I'm trying to understand what was -- what is the level of accuracy that your construction offers us?

A. I didn't feel comfortable calling it a perfectly monolithic body because it does have these external conductor material elements on it, arranged on it so --

Q. But it seems to me now as a result of this discussion that there is -- would it be fair to say that you haven't finished that construction?

MR. SCHATZ: Objection.

THE WITNESS: I'm comfortable.

Q. BY MR. SLONIM: So if I were to give you a

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capacitor that you haven't seen before and asked you whether it falls within the scope of Claim 1 of the '356 patent and the first element of that claim is a substantially monolithic dialectric body, what would you do in order to answer the question whether it has a substantially monolithic dialectric body or if it does not?

MR. SCHATZ: Objection, calls for speculation.

THE WITNESS: Yeah, I haven't thought that one out. I don't know what test I would perform on it.

Q. BY MR. SLONIM: Do you know if the literature specifies a test for substantially monolithic, for substantial monolithicness to --

A. No, I have not seen a defined test for something to be classified as substantially monolithic.

Q. And as you sit here today, you don't have that test that you can describe to me?

A. No. It just seemed like an accurate description of the device.

MR. SCHATZ: Timur, would now be a good time to take a break?

MR. SLONIM: Yes.

MR. SCHATZ: By my calculations we may have about 25 minutes left. Maybe during the break the court reporter could give us an assessment.

MR. SLONIM: I think about half hour is

probably about right. So do we agree?

(A discussion was had off the record; A recess was taken from 5:50 p.m. to 6:02 p.m.)

MR. SLONIM: We can go for about 20 minutes and then reassess where we are, just to close the loop. I think we probably we're only talking about ten minutes of a difference, which may not exist at the end, so, we can take it as we go through.

(Deposition Exhibits Nos. 7 & 8 were marked for identification.)

Q. BY MR. SLONIM: Dr. Godshalk, we've placed before you an excerpt from the McGraw-Hill Dictionary of Scientific and Technical Terms, and particularly, I want you to turn to Page No. 1294 at the top and if you could read the definition of, at the bottom of that page, of the term "monolithic ceramic capacitor?

A. Okay. "A capacitor that consists of thin dielectric layers interleaved with staggered metal-film electrodes after leads are connected to alternate projecting ends of the electrodes, the assembly is compressed and sintered to form a solid monolithic block."

Q. Does this definition of the monolithic ceramic capacitor say that a dialectric body of that capacitor necessarily includes metal plates?

A. It says "consists of thin dielectric layers

interleaved with staggered metal-film electrodes", so, it would seem to.

Q. To include metal electrodes conductors?

A. Staggered metal-film electrodes, yes.

Q. Would that change your opinion about Figure Alpha in Figure 8, that the monolithic dialectric body is of a multi-layer ceramic capacitor, is a perfect 100 percent dialectric body without plates?

MR. SCHATZ: Objection.

THE WITNESS: Doesn't change it at all.

MR. SCHATZ: Objection, calls for an application of a definition of a term that is not in connection with the '356 patent, and it also calls for an application that Dr. Godshalk has not provided testimony on.

THE WITNESS: Okay.

Q. BY MR. SLONIM: If you could continue your answer.

A. I'm fine with what I wrote, because it would classify as a dialectric body, not a ceramic capacitor. That wasn't the question.

Q. So if a capacitor has, as Claim 1 says, a substantially monolithic dialectric body, as Claim 1 of the '356 patent --

A. Mm-hm (affirmative response).

Q. -- does that mean that that dialectric body has plates or it doesn't have plates?

A. Well, I believe our term, where we wrote substantially, meaning to a great extent or degree, monolithic means consisting of one piece, is consistent with what we're talking about in the '356 patent. I don't see any problem there.

Q. So does it have plates or doesn't it?

MR. SCHATZ: Objection, asked and answered.

THE WITNESS: I think I answered that, didn't I?

Q. BY MR. SLONIM: No, you did not, as far as I could understand.

A. Okay.

Q. And that's why I'm asking.

A. Please repeat the question then.

Q. So when Claim 1 of the '356 patent says, "A capacitor comprising a substantially monolithic dielectric body," does that element, the substantially monolithic dialectric body, include conductive plates within it?

MR. SCHATZ: As far as the required definition, or as an example?

Q. BY MR. SLONIM: As far as that literal language is used in the claim?

A. Oh, I wasn't talking about the interior of the

capacitor there; I was focusing on the exterior of it, as a shape, that it's one piece, versus built up of multiple pieces. That was the intent of that.

Q. The intent of your construction?

A. Mm-hm (affirmative response).

Q. But you've also said that you can't determine if it's the same multi-layer capacitor or stacked up on each other at the same configuration. You won't be able to determine whether two capacitors stacked up on each other are substantially monolithic or not.

MR. SCHATZ: Objection, objection compound question.

THE WITNESS: What I said before is I couldn't decide that.

Q. BY MR. SLONIM: Is it fair to call a contact as used in Claim 1 and in your construction, a conductive layer?

A. I think it's too limiting to call it that, so I'd say no.

Q. Why is it limiting?

A. It implies that it has to be a two-dimensional surface.

Q. So a layer, is that your understanding that a layer is a two-dimensional surface?

A. It's a connotation of it.

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18:09:18 Q. And that's why I'm asking in the breadth of
18:09:22 the connotations, why is it not fair to call a contact a
18:09:28 conductive layer?
18:09:29 MR. SCHATZ: Objection, asked and answered.
18:09:32 THE WITNESS: Yeah, I think I did just answer
18:09:34 that. It's due to the connotation that it could be a
18:09:38 restriction that it's a planar, a plane.
18:09:40 Q. BY MR. SLONIM: If we were to look at Figure
18:09:47 18A in the '356 patent -- let's look at 19A.
18:09:56 A. Okay.
18:09:56 Q. There's contact 12 depicted there. Would it
18:10:08 be fair to call that contact that conductive layer?
18:10:14 MR. SCHATZ: Objection, vague.
18:10:22 THE WITNESS: I don't have an opinion on
18:10:24 calling it that or not. I think conductive material or
18:10:27 conductive structure is perfectly adequate.
18:10:29 Q. BY MR. SLONIM: If I wanted to call it a
18:10:31 conductive layer, would that also be a fine definition for
18:10:34 that contact 112?
18:10:37 MR. SCHATZ: Objection, asked and answered.
18:10:38 THE WITNESS: Yeah. I don't have an opinion
18:10:41 on that.
18:10:41 Q. BY MR. SLONIM: So you don't agree or disagree
18:10:48 with that construction?
18:10:50 A. I think it's too restrictive.

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18:10:52 MR. SCHATZ: Objection, asked and answered and
18:10:54 it mischaracterizes Dr. Godshalk's testimony of just about
18:11:00 a minute and a half ago.
18:11:01 Q. BY MR. SLONIM: Could you tell me whether you
18:11:02 agree, whether you have an opinion on whether a conductive
18:11:10 layer is appropriate construction for the term "contact"?
18:11:14 A. Let me look at my notes here for a second.
18:12:18 I don't like the term "layer" because it's
18:12:20 used nowhere in the '356 patent.
18:12:24 Q. So the term "layer" is not used in the '356
18:12:30 patent; is that your testimony here today?
18:12:31 A. What I'd like to say is when referring to Item
18:12:54 12, it's usually referred to as conductive material,
18:12:57 conductive structure. That's the dominant vernacular in
18:13:03 the patent.
18:13:03 Q. But it does not exclude the potential to
18:13:14 define contact as a conductive layer, does it?
18:13:23 Let me rephrase the question.
18:13:35 Could you tell me, what is the difference
18:13:40 between a conductive later and a conductive material, in
18:13:43 your expert opinion?
18:13:45 A. To me, layer implies two -- it could have a
18:13:49 connotation of requiring a two-dimensional surface. You
18:13:52 could put a bump, conduct a bump on this capacitor and use
18:13:57 it. It doesn't have to be a planar layer. It seems too

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18:14:00 restrictive to me to call it a layer. I think that the
18:14:04 words conductive material are perfectly adequate.
18:14:07 Q. And so if we were to look at the Figure 19A,
18:14:12 so the planar portion of contact 12, that's parallel to the
18:14:19 bottom portion, just that, without the, where it bent over
18:14:25 and goes into 117 and 108, would that portion, without
18:14:33 those portions bending over the capacitor, would you
18:14:36 consider that portion of contact 12 to be a conductive
18:14:40 layer?
18:14:41 A. No, I wouldn't.
18:14:44 Q. I'm not sure I understand your two-dimensional
18:14:51 versus three-dimensional import.
18:14:54 Is it your testimony that conductive material
18:14:58 is a three-dimensional something, three-dimensional
18:15:10 coating?
18:15:10 A. The question was about what I define as
18:15:26 conductive material; is that correct?
18:15:28 Q. Correct.
18:15:28 A. Okay.
18:15:29 Q. Whether that is a three-dimensional coating,
18:15:34 as opposed to what you call a two-dimensional layer?
18:15:39 A. Okay.
18:15:40 Q. I just want to understand what the precise
18:15:42 difference is.
18:15:43 A. I look at Figure 10A, and that's why

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18:15:51 conductive material, or conductive structure is, in my
18:15:55 opinion, is the term that's most accurate.
18:16:01 Q. So what in Figure 10A --
18:16:04 A. In this example the conductive structure could
18:16:07 be Items 12, 13, 74 and 72.
18:16:12 Q. And wouldn't the term layer cover those
18:16:27 things, in your opinion?
18:16:27 A. I didn't feel that it did, so that's why I
18:16:35 proposed the definition that's in the claim construction
18:16:39 document.
18:16:40 Q. Do you understand that the contact 12 and pad
18:16:49 74 are made of different materials as depicted in Figure
18:16:58 10A?
18:16:58 A. I don't know if we can make that assumption
18:16:59 that they are different.
18:17:00 Q. Do you see different hatchings?
18:17:02 A. I do.
18:17:02 Q. Do you understand that in patent law
18:17:08 applicants are supposed to hatch different materials
18:17:11 differently?
18:17:11 A. Hm. I did not.
18:17:13 Q. With that understanding, would you say that
18:17:20 there are different materials for contact 12 and pad 74?
18:17:27 A. I think, based definition you have told me,
18:17:30 then, yes, they would be different conductive materials.

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18:17:35 Q. And in your opinion, would the fact that they are different conductive materials still result in the same opinion? Would that change your initial opinion what the conductive material means?
18:17:51 MR. SCHATZ: Objection. Objection, vague.
18:17:54 Q. BY MR. SLONIM: You may answer.
18:17:55 A. I'm trying to understand which of the claims that this is relevant to, if you could help me on that.
18:18:53 Q. Could you give me a more complete question. I'm not sure I follow.
18:18:56 A. Okay.
18:18:59 Q. You mean which --
A. You're talking about --
18:18:59 Q. I think we're in Claim 1 contact --
18:19:02 A. Yeah.
18:19:02 Q. -- and you've defined it.
18:19:10 I think we can use either the first conductive contact or the second conductive contact; I understand them to the same in your construction?
18:19:18 A. Mm-hm (affirmative response).
18:19:19 Q. And both of them you construed to mean a conductive material.
18:19:24 A. Let's see. So your question was, because of the different crosshatches, my opinion on calling them conductive material; is that correct?

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18:20:43 Q. Right. Whether that changes your opinion about calling or defining a contact within Claim 1 as a conductive material?
18:20:53 A. Okay. I don't see that it has to change it being called a conductive material.
18:21:45 Q. So a conductive material, under your definition, would encompass a combination of two different materials, as you've told us that the -- under your definition, pad 74 and contact 12 or element 12 made of two different materials as denoted by different hatchings, under your construction, were a contact, and therefore, were a conductive material?
18:22:12 A. Yes.
18:22:12 Q. Have you reviewed Dr. Dougherty's claim construction statement?
18:22:27 A. No. I have not seen it.
18:22:28 Q. You were not provided with a copy of it?
18:22:30 A. Correct.
18:22:31 Q. Did you ask for it?
18:22:41 A. I did not know of it.
18:22:43 Q. Are you aware that Dr. Dougherty has provided a statement with exhibits about claim construction and other aspects of --
18:22:51 A. Yesterday they told me that essentially what you said.

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18:22:54 Q. Have you asked for that statement to review it?
18:22:57 A. No, I have not.
18:22:58 Q. Why not?
18:22:59 A. I was busy getting ready for this. I hadn't thought about it yet.
18:23:13 Q. So it wasn't important for you to read that statement in preparation for your deposition here today?
18:23:20 A. Well, I don't think I could do justice to it in one evening.
18:23:23 Q. And yesterday was the first time you were informed that Dr. Dougherty has provided such a statement?
18:23:30 A. That is the truth.
18:23:31 Q. What did you do to prepare for this deposition?
18:23:33 A. I read the '356 patent and all the filing materials that came with it, and I read all of the material that you provided, the approximately 46 references, plus there's three articles in the Herbert book. It's an excerpt from that book.
18:23:55 Q. How long did that preparation take you?
18:23:57 A. Approximately, see, we're in the 17th. A little over two months.
18:24:09 Q. What I meant was not what you've done to arrive at your claim construction opinions, but after you

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18:24:17 were done with your statement, specifically in preparation for this deposition, what have you done, and how long did that take you?
18:24:27 A. Okay. So, let me clearly understand you.
18:24:29 After this was submitted to you?
18:24:32 Q. Correct. And in preparation for today's deposition, what did you do?
18:24:37 A. This was -- what date was this submitted to you?
18:24:40 Q. February 26th, I think that's what your signature line indicates.
18:24:44 A. Oh, thank you.
18:24:45 Q. Absolutely.
18:24:46 A. Yes, okay.
18:24:50 MR. SCHATZ: While Dr. Godshalk is thinking, I'll just make a note for the record that we've gone 20 minutes since we took a break. We're okay going for a few more minutes.
18:25:00 MR. SLONIM: I appreciate that.
18:25:03 THE WITNESS: I haven't tallied up my hours on the Excel spreadsheet for this last week. I'll be glad to get you the exact hours.
18:25:19 Q. BY MR. SLONIM: Without the hours, what did you do to specifically prepare for this deposition?
18:25:23 A. Okay. I reread the '356 patent and all the

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file materials which were exchanged with USPO.
Q. When was that?
A. When was that?
Q. When was that?
A. Primarily over the last seven to ten days.
Q. Did you meet with Counsel to prepare for this deposition?
A. I met with them yesterday.
Q. For how long?
A. Approximately, let's see, I arrived at 1:30, and I think I left at approximately 5:30, so it would be four hours.
Q. Where was the meeting?
A. The Marriott.
Q. And who was present?
A. Myself and the two counsel members.
Q. Mr. Ahrens and Mr. Schatz?
A. Yes.
Q. Nobody else?
A. Correct.
Q. Did you call anybody from that meeting?
A. No.
Q. Did anybody call in?
A. No.
Q. If you could, the last question, if you could

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turn to Claim 18 in the '356 patent --
A. Okay.
Q. And we haven't done anything with that claim, and I just have two or three questions about it.
When the Claim 18 says, "The capacitor of Claim 1 wherein the ceramic body comprises," what is your understanding that the term the ceramic body refers to?
MR. SCHATZ: I'm going to object as that line of questioning goes beyond the testimony that Dr. Godshalk has offered, and this is not a claim term that's been a part of claim construction, so it, by definition, goes beyond the scope of the deposition.
Q. BY MR. SLONIM: You may answer.
A. Yeah, I have not had an adequate time to prepare an answer on that claim item. I didn't know, did not know that I would be questioned on it, so I think it would be foolish for me to make a statement on it at this time.
Q. If you could look in Claim 1 --
A. Okay.
Q. Do you see the word "ceramic", with the phrase "ceramic body" anywhere in Claim 1?
A. I did not see it in my reading of it.
Q. And so where, when this phrase "the ceramic body" appears for the first time in Claim 18, what would

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you understand that to refer to?
MR. SCHATZ: Objection, goes beyond the scope of this deposition and Dr. Godshalk's offered testimony relative to claim construction.
Q. BY MR. SLONIM: You may answer that question.
A. I'd rather not answer it if I'm not required to at this time.
Q. Well, I'm posing the question, there is no instruction not to answer, there is an objection.
A. Mm-hm (affirmative response).
Q. And that's why I would like you to answer that question, as I'm sure the Court would like to hear that answer.
MR. SCHATZ: I'll object to the frame of the question where you're assuming what the Court would or would not like to hear. That's inappropriate and in my opinion is an attempt to intimidate the witness.
Q. BY MR. SLONIM: You may answer.
A. I don't have an opinion.
Q. Is it fair to say -- I'm sorry if I interrupted. Did you finish your answer?
A. That's fine.
Q. Would it be fair to say that if, as you've acknowledged, Claim 1 does not have a phrase "ceramic body", and the phrase "the ceramic body" in Claim 18 cannot

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refer to anything that's in Claim 1?
MR. SCHATZ: Objection, outside the scope of this deposition, and again, it's beyond what the offered opinions of Dr. Godshalk are.
Q. BY MR. SLONIM: Based on your considerable amount of review of the patent and Claim 1 and the constructions, would that be a fair statement, in your expert opinion?
MR. SCHATZ: Same objection.
THE WITNESS: I don't have an opinion at this time how the term "ceramic body" relates to the claims in Claim 1. I don't see the significance of it at this moment.
MR. SLONIM: Okay, let's leave it at that.
THE WITNESS: Okay.
MR. SLONIM: Thank you, Dr. Godshalk.
THE WITNESS: Thank you.
MR. SLONIM: I appreciate it.
(The deposition concluded at 6:30 p.m.)

EXAMINATION INDEX

By Mr. Slonim Page 3

* * *

EXHIBIT INDEX

No.	Item	Page
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2	Letter, January 16, 2008 To Slonim, From Schatz	32
3	Summary of Claim Construction Opinions of Dr. Edward Godshalk	46
4	Sketch of pentagonal pyramid	70
5	Hexahedron - definition	71
6	Sketch	237
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(Attached hereto.)

* * *

CERTIFICATE

I, Marcia May, an Oregon Certified Shorthand Reporter, do hereby certify that, pursuant to the Oregon Rules of Civil Procedure, EDWARD GODSHALK, PhD., personally appeared before me at the time and place mentioned in the caption herein; that the witness was by me first duly sworn on oath and examined upon oral interrogatories propounded by counsel; that said examination, together with the testimony of said witness, was taken down by me in stenotype and transcribed through computer-aided transcription; and that the foregoing transcript constitutes a full, true and accurate record of said examination of and testimony given by said witness, and of all other oral proceedings had during the taking of said deposition, and of the whole thereof.

Witness my hand at Vancouver, Washington, this 19th day of March, 2008.

____

Oregon CSR No. 90-0084

Godshalk Deposition Exhibit 6

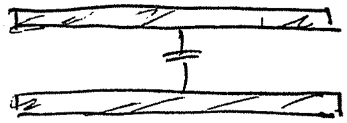


Figure A. Parallel Plate Capacitor

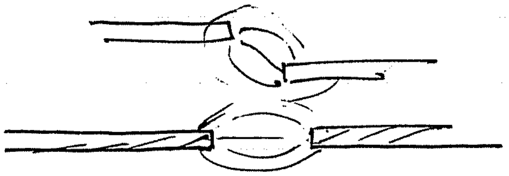
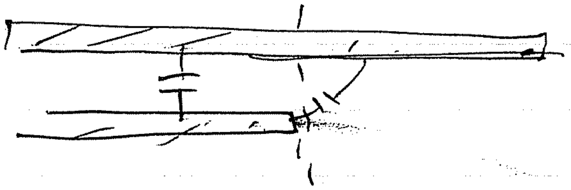


FIGURE B. Fringe "Gap" capacitor



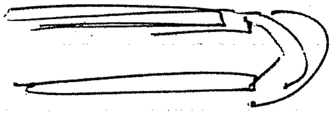


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EXHIBIT
6
Godshalk